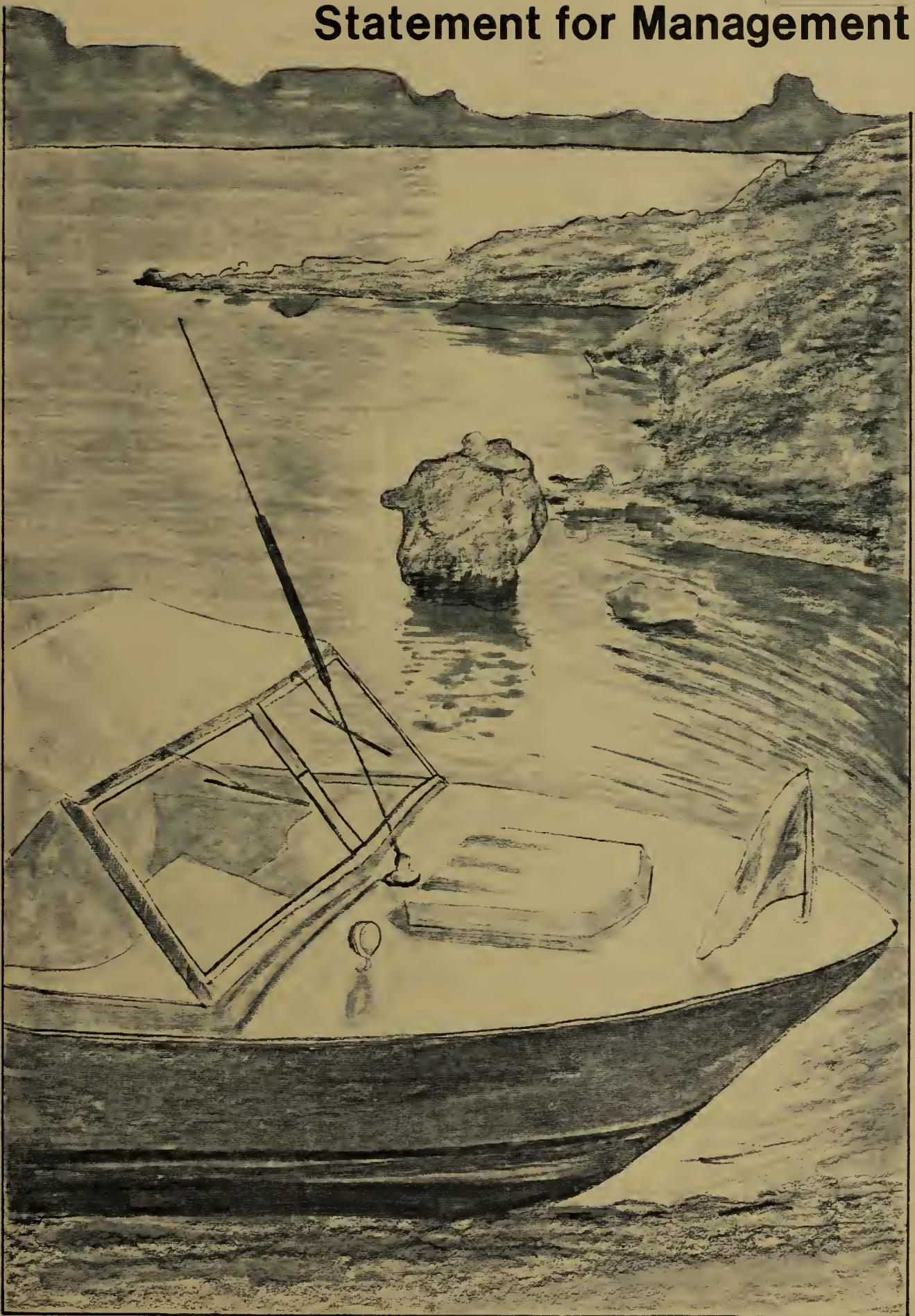


August 1991

Statement for Management

Glen Canyon National Recreation Area



Definition

The statement for management (SFM) provides an up-to-date inventory of the park's condition and an analysis of its problems. It does not involve any prescriptive decisions on future management and use of the park, but it provides a format for evaluating conditions and identifying major issues and information voids.

Recommended by: /s/ John O. Lancaster July 1991
Superintendent, Date
Glen Canyon National Recreation Area

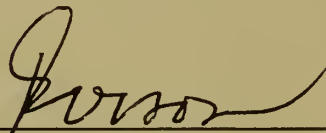
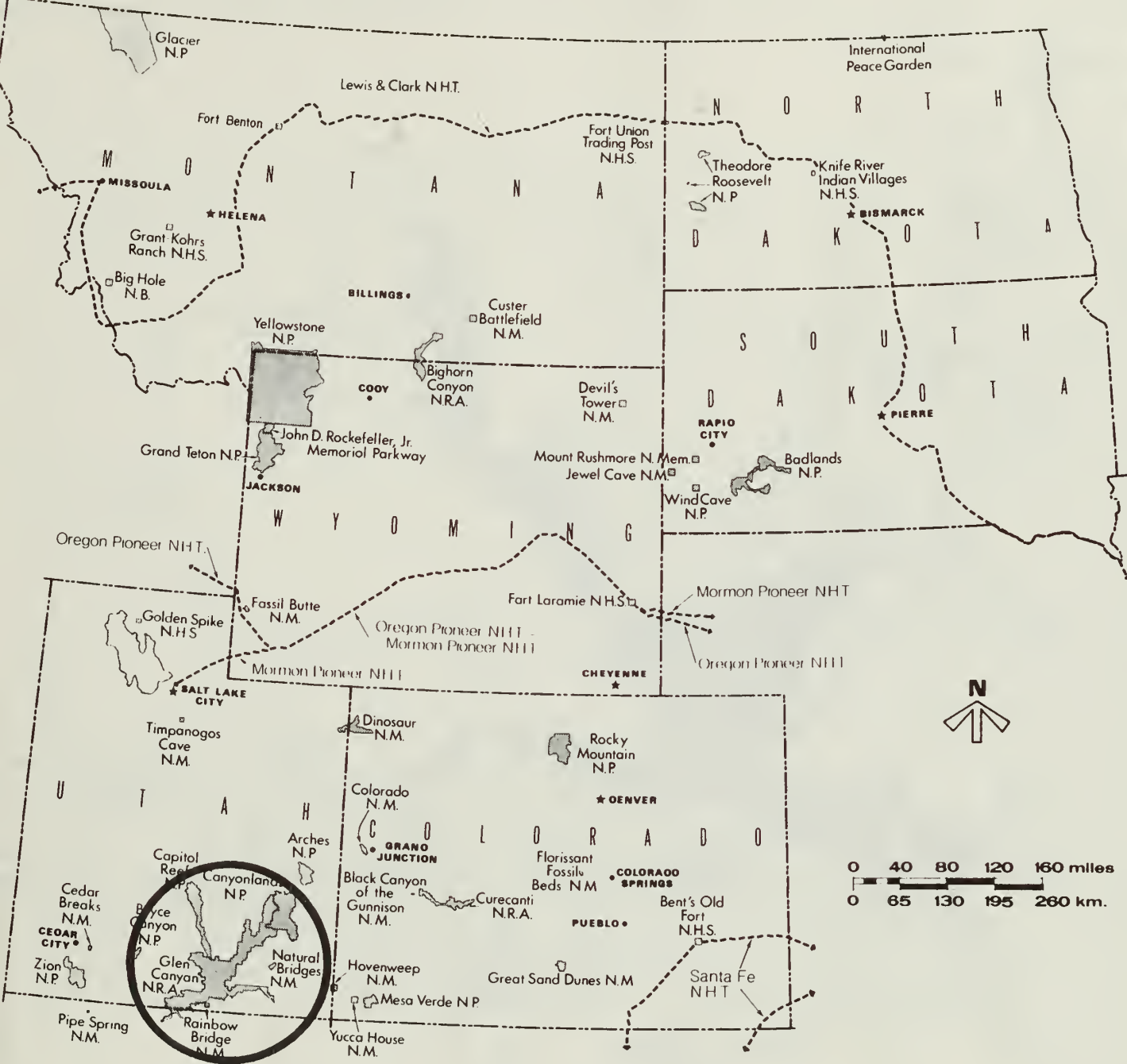
Approved by:  8/8/91
Regional Director, Date
Rocky Mountain Region

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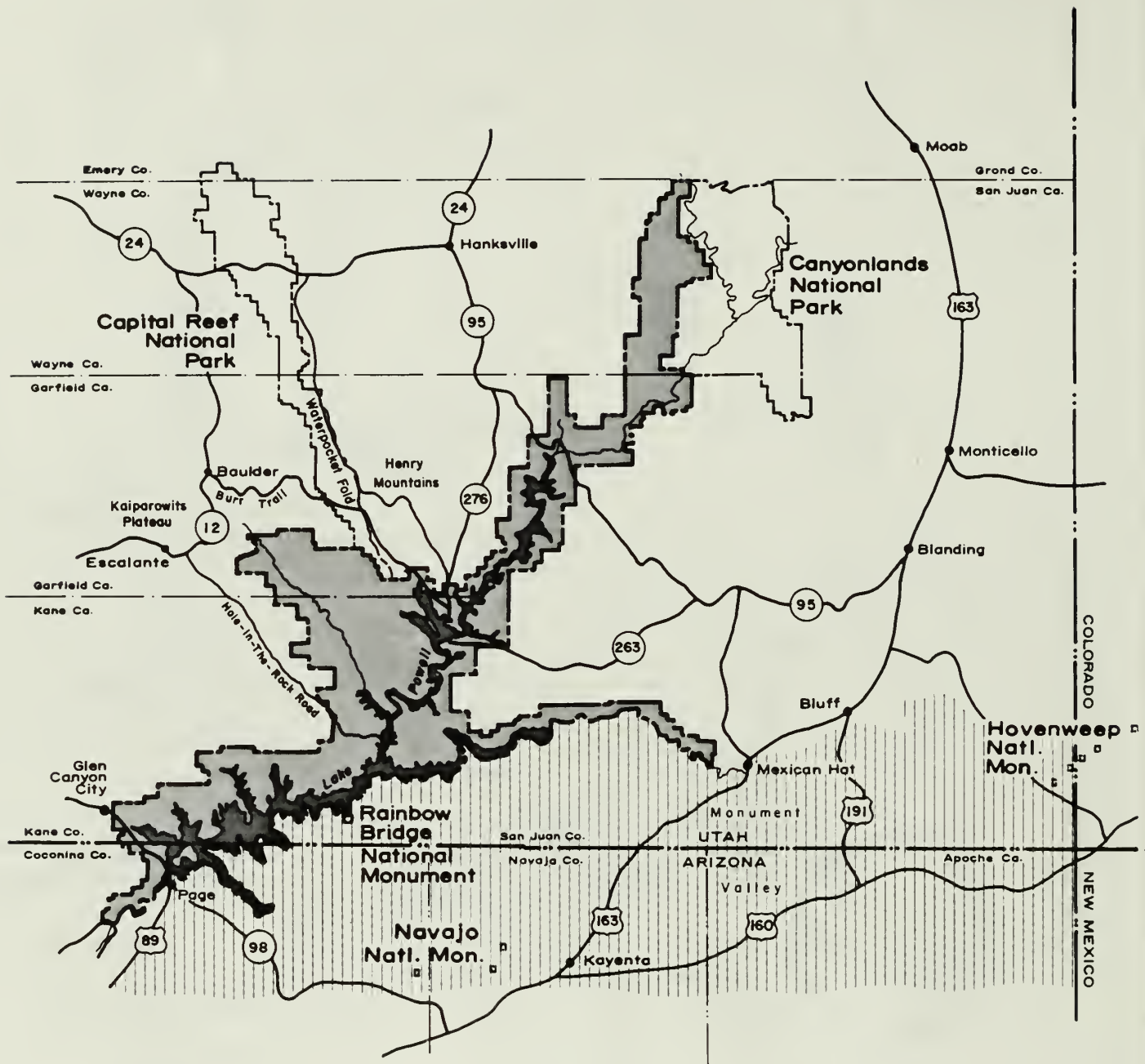
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- Locations of Major Cities
- ★ Locations of State Capitals
- State Boundary Lines
- National Park Service Areas
- National Park Service Historical Trails

ROCKY MOUNTAIN REGION

National Park Service

United States Department
of the Interior



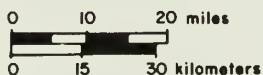
LEGEND



Glen Canyon N.R.A.



Navajo Indian Reservation




VICINITY MAP

GLEN CANYON NATIONAL RECREATION AREA

utah-arizona

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE



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LOCATION

Glen Canyon National Recreation Area (GLCA NRA) is in southeastern Utah and northern Arizona. It covers portions of Kane, Garfield, San Juan and Wayne counties in Utah and part of Coconino County in Arizona. Glen Canyon is seated in the First (Kane, Garfield and Wayne counties) and Third (San Juan County) Congressional Districts of Utah and the Third Congressional District (Coconino County) of Arizona.

The Navajo Indian Reservation forms the southern boundary of the NRA. Adjacent to Glen Canyon are the Navajo Nation Chapters of Oljeto, Navajo Mountain, Kaibeto, LeChee and Gap-Bodaway.

The total area comprises some 1,255,400 acres, or approximately 18,600 acres more than the legislatively mandated total of 1,236,880 acres. These acreages, at best, are estimates and will remain so until a boundary survey can establish the exact totals.

Acreages by states and counties are as follows:

| | |
|-----------------|--|
| Arizona | 48,270 acres or 4 percent of the NRA |
| Coconino County | 48,270 acres or 4 percent of the NRA |
| Utah | 1,207,130 acres or 96 percent of the NRA |
| Garfield County | 325,785 acres or 26 percent of the NRA |
| Kane County | 463,610 acres or 37 percent of the NRA |
| San Juan County | 318,270 acres or 25 percent of the NRA |
| Wayne County | 99,465 acres or 8 percent of the NRA |

Glen Canyon is located on the Colorado Plateau in the heart of some of the Nation's most rugged canyon country. Lake Powell, the Nation's second largest manmade lake, is the most prominent feature in this otherwise arid environment. Following the course of the Colorado River for almost 200 miles, the recreation area abuts Canyonlands National Park, Capitol Reef National Park, Rainbow Bridge National Monument and Grand Canyon National Park with Lake Mead National Recreation Area downstream. This immediate area constitutes a significant part of the outstanding national parklands in the general region.

With the Navajo Indian Reservation on the south, public lands that are mostly administered by the Bureau of Land Management surround the remainder of Glen Canyon. Because of the rugged terrain, road access to the area is limited. U.S. Highways 89 and 89A and Arizona Highway 98 provide access to the Page, Wahweap, Lone Rock, Antelope Point and Lees Ferry areas at the south end of the recreation area; Utah State Highway 95 provides access to the northern end of the area with paved spur roads leading to Hite, Halls Crossing and Bullfrog. A ferryboat operation begun in 1985 provides access between Halls Crossing and Bullfrog. U.S. Highway 163 and a dirt spur road provide access to San Juan Marina across the Navajo Reservation. Road access to other parts of the recreation area is by primitive dirt roads that are popular with four-wheel-drive enthusiasts.

Page, Arizona, with a population of 6,500, is the largest community in the vicinity of Glen Canyon. It developed from the dam construction, and is located 1-1/2 miles from the dam and about 7 miles from the Wahweap Marina of the southwest end of the recreation area. All other marinas are remote from towns. In spite of this, there were over 3.2 million visits recorded in 1988. Visitors are primarily from metropolitan areas in southern California, Arizona, Utah and Colorado. There are 25 million people within a day's drive of the recreation area.

PURPOSE AND SIGNIFICANCE

Glen Canyon National Recreation Area was established to ". . . provide for public outdoor recreation use and enjoyment of Lake Powell and lands adjacent thereto in the States of Arizona and Utah and to preserve the scenic, scientific, and historic features contributing to public enjoyment of the area . . ." (Public Law [P.L.] 92-593, October 27, 1972, 86 Stat. 1311, see Appendix A).

Though it represents only 13 percent of the total area of Glen Canyon, Lake Powell forms the core of this outstanding recreation resource. Created by the Glen Canyon Dam--a major storage unit of the Upper Colorado River Storage Project authorized by Congress in 1956--this impoundment stretches along 186 miles of the Colorado River and 75 miles of the San Juan River. Altogether, this reservoir holds 27,000,000-acre-feet of water, has a surface area of 255 square miles, and has a shoreline of 1,960 miles. It is the second largest artificial lake in North America (based on water storage capacity), exceeded only by Lake Mead.

Combining the sparkling blue waters of Lake Powell with the spectacular canyon country adds to the tremendous outdoor recreation potential of the area. In a vast region containing some of the finest and most famous canyons in the world--Grand Canyon, Cataract Canyon, Bryce Canyon, Zion Canyon, Marble Canyon and others--the sheer-rock shoreline of Lake Powell dominates the central portion of the entire region.

The main stem of the Colorado River forms the backbone of the recreation area, but through the ages numerous other rapid-running streams have contributed to the topography by carving the labyrinth of canyons that exists today. The San Juan, Dirty Devil, Paria, Escalante and Colorado rivers continue to flow, carving the landscape and providing excitement and solitude to river runners.

The recreation area is part of a vast, rugged region with physiographic features both numerous and diverse. Geologically, it consists primarily of Jurassic sandstone 140 to 200 million years old. Wind-deposited sediments, which became massive sand dunes, and water-deposited marine sediments eventually consolidated into porous, loosely cemented sandstone. Through the processes of uplifting and rapid erosion, today's surface formations have been carved into thousands of different shapes and forms. There are countless cliffs, spires, pinnacles, knobs, arches and natural bridges throughout the area.

The bench and upland areas support a wide variety of Colorado Plateau plant communities ranging from the dominant cold, desert shrub-grassland to cottonwood, willow and tamarisk groves near streams, and Utah juniper and piñon woodland at high elevations. There are 26 isolated buttes and mesa tops that support relict grassland vegetation, indicative of pre-settlement conditions throughout the Colorado Plateau. In wet years, the wildflower display is spectacular and adds to the visitors' enjoyment of the area. Over 870 species of plants have been identified.

There are two plants currently protected under the Endangered Species Act: Brady Pincushion Cactus (*Pediocactus bradyi*) and Jones Cycladenia (*Cycladenia humilis* var. *jonesii*).

Hanging gardens of international interest, formed along seeps in the canyon walls, and shaded plunge-basin riparian habitats, found in the deep, narrow canyons, add interest, color, and diversity to the park.

An abundance of animals reside in the varied desert lands of Glen Canyon. The area supports 80 mammal species, approximately 200 resident and transient bird species, and about 40 species of reptiles and amphibians. The deep drainages of the Colorado River form distributional barriers for many animal species, making the area an important one for study of biological classification.

Smallmouth bass, largemouth bass, striped bass, black crappie, walleye and other game fish have been planted in Lake Powell and constitute a major recreational resource. Channel catfish and carp are also plentiful. Rainbow trout, found in the Colorado River below the dam, are considered a blue-ribbon sport fish. Three species of endangered fish occur in the area: the humpback chub, bonytail chub and the Colorado squawfish. The squawfish and suckers are still found in Lake Powell and adjoining tributaries within the NRA. An increasingly rare species found in the area, the razorback sucker, has been proposed for listing as a threatened species.

In addition to being areas where skeletal remains have been located, several alcoves throughout the park recently have been found to contain organic remains of extinct megafauna such as the mammoth, which inhabited the area during the late Pleistocene epoch. These remains, together with a wide range of paleobotanical and faunal deposits such as packrat middens, are being used to begin a detailed paleoclimatic reconstruction of the Colorado Plateau.

The rich, cultural history of the region also contributes to the significance of the area. Numerous archeological sites including cliff dwellings, granaries, open habitation sites, lithic and ceramic scatters, and rock-art panels give evidence of more than 10,000 years of Indian use of the area. The most numerous remains represent the Pueblo culture between A.D. 1000 and 1300. The inventory of cultural resources in the park is presently incomplete, and, therefore, the full significance of these is yet to be determined.

The history of European man in the area began with the passage through the area of the Dominguez-Escalante Party in 1776 on its search for an overland route between Spanish

enclaves in Santa Fe (now in New Mexico) and California. Lees Ferry and Hole-in-the-Rock are historical reminders of the area's settlement beginning in 1858. John Wesley Powell explored and charted portions of the area along the Colorado River during his 1869 and 1871 expeditions.

Cattlemen and sheepmen began to use the area in the 1880s, and grazing by cattle continues to the present day. Historic structures and trails from this colorful phase of Western history occur throughout the area.

Mining also has left a physical record on the landscape ranging from the "Gold Rush" period of the 1880s through the early 1900s to the great uranium boom of the late 1940s and 1950s. Interest still exists today in the area's coal, oil, tar sands and uranium deposits.

INFLUENCES: INVENTORY AND ANALYSIS

The responsibility for operating the reservoir of Lake Powell in accordance with the numerous laws governing distribution of water on the Colorado River System lies with the Bureau of Reclamation. Water releases from Glen Canyon Dam are programmed to maximize the generation of electrical power during peak demand periods. The marketing of federal electric power is the responsibility of the Western Area Power Administration. The National Park Service manages Glen Canyon National Recreation Area and is the agency responsible for the conservation and management of the natural and cultural resources of Lake Powell and adjacent lands and for providing public recreational opportunities.

LEGISLATIVE AND ADMINISTRATIVE REQUIREMENTS AND CONSTRAINTS

Establishing Legislation

Basic to Glen Canyon National Recreation Area is its establishing legislation (P.L. 92-253 86 Stat. 1311) that contains the following major legislative constraints on management in its various sections. Management response to these requirements follow.

Sec. 1. ". . . The Secretary . . . may revise the boundaries . . . from time to time . . . but the total acreage may not exceed one million two hundred and thirty-six thousand eight hundred and eighty acres."

--A boundary survey is needed to establish the exact total of the acreage within the recreation area.

Sec. 2. (a). ". . . Any lands owned by the States of Utah, or Arizona, . . . may be acquired only by donation or exchange . . ."

--No land exchanges have taken place to date. The National Park Service has consistently supported the state of Utah's position (outlined in "Project Bold") of exchanging state lands within national parks for public domain lands outside parks.

Sec. 3. (a). "The lands within the recreation area, subject to valid existing rights, are withdrawn from location, entry, and patent under the United States mining laws . . ."

--There are no valid patented or unpatented mining claims within the recreation area.

Sec. 3. (a). ". . . the Secretary shall permit the removal of the nonleasable . . . and . . . leasable minerals . . . if he finds that such disposition would not have significant adverse effects on . . . the administration of the national recreation area . . ."

--There have been no new mineral leases issued since the area was established, however, there are 17 mineral lease offers under review.

Sec. 4. "The Secretary shall administer, protect, and develop the recreation area . . . for the conservation and management of natural resources . . ."

--This is being done consistent with the authorities granted in the 1916 enabling legislation of the National Park Service.

Sec. 4. ". . . nothing in this Act shall affect or interfere with the authority of the Secretary . . . to operate Glen Canyon Dam and reservoir . . . for river regulation, irrigation, flood control, and generation of hydroelectric power."

--Interactions between the Bureau of Reclamation and the National Park Service are formalized in a cooperative agreement.

Sec. 5. "The Secretary shall permit hunting, fishing, and trapping . . . except that the Secretary may designate zones where, and establish periods when, no hunting, fishing, or trapping shall be permitted for reasons of public safety, administration, or public use and enjoyment . . ."

--Closed areas have been established in accordance with guidelines established in Title 36 of the Code of Federal Regulations (CFR) governing closures. Closures have been implemented after consultation with other agencies that share jurisdiction within the NRA. Any future closures will be carried out in the same manner.

Sec. 6. "The administration of mineral and grazing leases within the recreation area shall be by the Bureau of Land Management. The same policies followed by the Bureau of Land Management in issuing and administering mineral and grazing leases on other lands under its jurisdiction shall be followed in regard to the lands within the boundaries of the recreation area, subject to . . ." other sections of the Act state ". . . that such . . . would not have significant adverse effects on . . . administration of the national recreation area . . ." and ". . . in accordance with the provisions of the Act of August 25, 1916 . . . for the conservation and management of natural resources . . ."

--A national memorandum of understanding between the National Park Service and the Bureau of Land Management (BLM) has been implemented delineating agency responsibilities for grazing. An amplification of that document has been negotiated between the Rocky Mountain Region of the NPS and the Arizona and Utah State Offices of the BLM.

Sec. 7. "The Secretary shall grant easements and rights-of-way . . . upon, over, under, across, or along any component of the recreation area unless . . . the route of such . . . would have significant adverse effects on the administration of the recreation area."

--The 1979 *General Management Plan (GMP)* for Glen Canyon established utility corridors for known needs, and any additional rights-of-way will be authorized consistent with the National Environmental Policy Act (NEPA) and NPS regulations found in Part 14, Title 36 of the CFR.

--In 1986 the Bureau of Land Management transferred the administration of six rights-of-way to the National Park Service. These rights-of-way were issued prior to 1972 when the National Recreation Area was formally established.

Sec. 8. "The Secretary together with the Highway Department of the State of Utah, shall conduct a study of proposed road alignments within and adjacent to the recreation area. Such study shall locate the specific route of a scenic, low-speed road, hereby authorized, from Glen Canyon City to Bullfrog Basin, . . . and shall designate what additional roads are appropriate and necessary for full utilization of the area for the purposes of this Act and to connect with all roads of ingress to, and egress from the recreation area."

--A road study was completed in 1974 by the Utah Department of Transportation and the National Park Service.

--Under Federal Revised Statue 2477, county governments are claiming road rights-of-way within Glen Canyon National Recreation Area where roads were constructed and maintained by the county prior to the withdrawal of the area from the public domain.

Sec. 9. "Within two years from the date of enactment of this Act, the Secretary shall report to the President, . . . his recommendation as to the suitability or nonsuitability of any area within the recreation area for preservation as wilderness . . . in accordance with . . . (the) Wilderness Act."

--A wilderness suitability study was completed as part of the 1979 Glen Canyon General Management Plan. Its recommendations have not been referred to the Secretary. The Natural Zone delineated in the GMP is managed as potential wilderness.

Sec. 10. "There are hereby authorized to be appropriated such sums as may be necessary to carry out the purposes of the Act, not to exceed however, \$400,000 for the acquisition of lands and interests in lands and not to exceed \$37,325,400 for development. . . ."

Further insight into the background of the enabling legislation and congressional intent is contained in the legislative history for the recreation area. Copies of House of Representatives Report 91-1446 and Senate Report 92-156 are available for review in the Superintendent's Office at Park Headquarters in Page, Arizona.

Other Legislative and Administrative Requirements

There is a complex body of federal and state law, regulations and policy that direct, guide and influence management of Glen Canyon National Recreation Area. For the purpose of the *Statement for Management*, the following are some of the more important legal guidelines germane to the recreation area.

Navajo Indians--Land Exchange (P.L. 85-868; 72 Stat. 1686). This September 2, 1958, act provided for the exchange of lands needed for reservoir construction between the United States and the Navajo Nation. It established "Parcel A" lands (unsurveyed land in Arizona) and "Parcel B" (partially surveyed lands in Arizona and Utah from the old center line of the Colorado River up to elevation 3,720 feet on the southern portion of the lake). Use of Parcel B lands for recreational facilities cannot be made without the approval of both the Navajo Tribal Council and the National Park Service.

Public Land Order 5687, November 14, 1979. The land order restored certain lands to the Navajo Tribe that had been withdrawn or exchanged under P.L. 85-868. It restored Antelope Point, which was part of the Parcel A lands at the Page townsite, to the Navajo Tribe in exchange for additional water rights.

Colorado River Storage Project Act of 1956 (P.L. 84-485; 70 Stat. 105). A number of dams on the Upper Colorado River, including Glen Canyon Dam, were authorized by this legislation. It also required the Secretary of the Interior to make adequate provisions to protect Rainbow Bridge National Monument from impairment. Section 8 of this Act authorized and directed the Secretary "to investigate, plan, construct, operate, and maintain (1) public recreational facilities on lands withdrawn or acquired for the development of said project . . . to conserve the scenery, the natural, historic, and archaeologic objects, and the wildlife on said land, and to provide for public use and enjoyment of the same and of the water areas created by these projects . . . and (2) facilities to mitigate losses of, and improve conditions for, the propagation of fish and wildlife . . ."

Colorado River Basin Project Act of 1968 (P.L. 90-537; 82 Stat. 885). The operational program for the upper and lower basin portions of the Colorado River were established by this act. An elevation of 3,700 feet above sea level was established as the full pool for Lake Powell. A flood level of 3,710 feet also was established to prevent development in this additional 10-foot zone.

Supreme Court Decision: The United States of America vs. The State of Utah (May 18, 1931). Navigability status of the Colorado, Green and San Juan rivers was established through this court case, and the ownership of the respective riverbeds was apportioned based on their navigability. Thus, portions of the ancestral bed of the Colorado and Green rivers are owned by the state of Utah since the rivers were declared navigable and, as such, were deeded to the state on its admission to the Union.

Reservoir Salvage Act of 1960 (P.L. 86-523; 74 Stat. 220, 16 U.S.C. §§ 469-469c). This law was a further expression of the commitment of Congress to the prevention of damage to significant historic and prehistoric properties. It specifically provided for the preservation of data that might otherwise be destroyed or lost as the result of dam construction.

National Historic Preservation Act as amended (P.L. 89-665; 80 Stat. 915, 16 U.S.C. § 470 et seq.). This act established a comprehensive national policy of historic preservation. Section 106 of the act requires agency heads to consider cultural resources when planning an undertaking, and to allow the Advisory Council on Historic Preservation (ACHP) an opportunity to comment on the undertaking. Recognizing that inadvertent damage to sites must be curtailed, the act directs review at the state and federal levels.

The National Park Service is responsible for the

- identification of resources;
- evaluation of significance;
- assessment of the impact of any undertaking on the significant value of the property;
- mitigation of adverse effect; and
- management.

In December 1980, the National Historic Preservation Act was amended significantly by Public Law 94-422 (90 Stat. 1319). Among the provisions the new act authorized or required were the following:

- requires the development of professional standards for the preservation of historic properties in federal ownership or control by the Secretary of the Interior, in consultation with the Secretary of Agriculture, among others;
- requires the heads of all federal agencies to assume responsibility for the preservation of historic properties that they own or control;
- directs agencies to use available historic properties to the maximum extent possible;
- allows an agency to exceed the limitation of one percent of project cost where appropriate; and
- allows agencies to lease an historic property if its preservation will be insured. Permits use of proceeds for maintenance, repairs and administration of the property.

Archeological and Historic Preservation Act of 1974 (P.L. 93-291; 88 Stat. 174, 16 U.S.C. § 469). This act amended and updated the Reservoir Salvage Act of 1960, broadening the earlier legislation beyond that of the dam construction. The amendment applies to ". . . any alteration of the terrain caused as a result of any federal construction project or federally licensed activity or program . . ."

The Act authorizes an agency to spend up to one percent of project costs for mitigation of the impacts to cultural resource sites and properties (revised by 1980 amendment to National Historic Preservation Act). Under the 1974 act, an agency official may request assistance from the Secretary of the Interior in mitigation efforts.

American Indian Religious Freedom Act (P.L. 95-341; 42 U.S.C. § 1966). This act establishes that it is the policy of the United States to protect and preserve for Native Americans their inherent right of freedom to believe, express and exercise their traditional religions and rites to include access to traditional sites and the use and possession of sacred objects.

The National Park Service must assure that its general regulations on access to and use of park lands and park resources are applied in a balanced manner that does not unduly interfere with a Native American group's use of historically traditional places or sacred sites located within the boundaries of a park unit.

Archeological Resources Protection Act of 1979 (ARPA) (P.L. 96-95; 93 Stat. 712, 16 U.S.C. § 470aa, et seq.). The ARPA was enacted in 1979 to prevent the illegal excavation, damage or possession of archeological resources located on federal, other public land and Indian land.

The Code of Federal Regulations protects archeological resources within park areas. Such resources in parks are defined in the CFR consistent with definitions set forth in the ARPA. However, the ARPA gives much greater authority and discretion to federal land managers and the United States Attorney to prosecute criminally, or handle as a civil matter, offenses including the taking, damaging, possessing or selling of archeological resources. One of the major impacts of the ARPA was that it increased penalties for such acts.

Lacey Act of 1900, as amended by P.L. 97-79, 18 U.S.C. §§ 42-44, Title 50 CFR. The Lacey Act is a single, comprehensive statute providing effective enforcement of state, federal, Indian tribal and foreign conservation laws protecting fish, wildlife and rare plants.

The Code of Federal Regulations protects wildlife, fish and all plants that may be taken or possessed within national park areas. However, the Lacey Act gives much greater discretion to park managers and the U.S. Attorney to prosecute criminally, or handle civilly, more serious violations involving the taking of wildlife, fish or rare plants. Discussions between the U.S. Attorney's Office and local U.S. Fish and Wildlife Service (FWS) enforcement agents should occur whenever commercial or other serious degradation of these resources is suspected on park lands.

Bald and Golden Eagle Protection Act as amended, (P.L. 86-70, 73 Stat. 143, 16 U.S.C. §§ 668-668d). This statute prohibits taking, possessing or trading of bald and/or golden eagles.

Eagles are protected along with all other wildlife under the Code of Federal Regulations. However, this act gives considerable discretion to park managers and the U.S. Attorney to exact a more severe penalty for taking or possessing eagles, if circumstances warrant. However, discussion between the U.S. Attorney's Office and area Fish and Wildlife Service enforcement agents should occur whenever possible violations of the act take place in a park area.

Concessions Policy Act of 1965 (P.L. 89-249; 79 Stat. 969; 16 U.S.C. § 20 et seq.). The Concessions Policy Act provides authority for and guidance in the establishment of concession policies in areas administered by the National Park Service. The act provides for the following:

- a determination that concession facilities and services must be necessary and appropriate;
- consideration of protection against loss of investment in tangible property;
- a reasonable opportunity to realize a profit;
- establishment of comparable rates to be charged;
- a preferential right to provide new or additional services and in the negotiation of new contracts;
- establishment of a possessory interest in improvements on lands owned by the federal government; and
- establishment of franchise fees.

The National Environmental Policy Act (NEPA) of 1969 (P.L. 91-190, 83 Stat. 852; 42 U.S.C. § 4321 et seq.). The National Environmental Policy Act declares that it is the policy of the federal government to improve and coordinate federal plans, functions, programs and resources so that the Nation may preserve important historic, cultural and natural aspects of our heritage.

The National Park Service is required to review each proposed action to determine if it could significantly affect the quality of the human environment and assess in detail the environmental impacts of such actions. These determinations are made in accordance with *NPS-12, the National Environmental Policy Act Guideline*.

The Wilderness Act, (P.L. 88-577; 78 Stat. 890; 16 U.S.C. §§ 1131-1136). The purpose of the Wilderness Act is to legislatively establish an enduring wilderness resource for public use and enjoyment.

In compliance with this act, the NPS has established management policies and directives with respect to wilderness studies and appropriate human activities in such areas before and after the legislative process is completed.

Endangered Species Act of 1973 (P.L. 93-205; 87 Stat. 884; 16 U.S.C. § 1531 et seq.). This act provides for the conservation of threatened and endangered species of fish, wildlife and plants through federal action and by encouraging state programs.

Section 7 of the act requires federal agencies to consult with the Secretary of the Interior or the Secretary of Commerce on all projects and programs having potential impact on endangered or threatened species. It further requires them to take ". . . such action necessary to insure that actions authorized, funded, or carried out by them do not jeopardize such endangered or threatened species or result in the destruction or modification of habitat . . ."

The National Park Service is responsible for maintaining an inventory of endangered or threatened species within a park area either on a permanent or seasonal basis;

considering impacts of any project or program upon endangered or threatened species; and maintaining liaison with the U.S. Fish and Wildlife Service concerning applicable regulations and changes in subject listings.

National Park Service Authorities Act (P.L. 94-458; 90 Stat. 1939; 16 U.S.C. 1a et seq.). This legislation provided additional improvement and authorization for the administration of the National Park System.

It provides the Secretary of the Interior with authority to relinquish part of his legislative jurisdiction, and allows the Secretary to move from exclusive to concurrent jurisdiction without a special act of Congress, which was previously required. The expressed intent of the Department is to move toward concurrent jurisdiction in all NPS areas.

The act authorizes the Secretary to designate, pursuant to standards prescribed in Departmental regulations, certain officers or employees of the Department to maintain law and order and protect people and property within areas of the National Park System. The authority also provides for designation of officers of other agencies as special police officers under prescribed criteria.

It also authorizes law enforcement people to carry firearms, make arrests without a warrant for any offense committed against the United States, execute warrants or other processes, and conduct investigations of offenses against the U.S. committed in a park area in the absence of or with the concurrence of any other federal law enforcement agency having investigative jurisdiction over the offense committed.

Clean Air Act as amended, P.L. 88-206, 42 U.S.C. § 7401 et seq. The Clean Air Act is very complex and has multiple purposes. One such purpose of Title I of the act is preservation, protection and enhancement of the air quality in national parks, national wilderness areas and other areas of special natural, recreational, scenic or historical value. The 1977 amendment establishes Class I, II and III areas where the increase in sulphur dioxide and particulate matter is to be restricted. The restrictions are more severe in Class I areas and progressively more lenient in Classes II and III.

The Act requires all federal agencies to comply with federal, state, interstate and local requirements towards control and abatement of air pollution. As such, the National Park Service is responsible for assuring that park facilities and programs are in compliance with state implementation plans (SIPs); establishing monitoring and/or research programs for determining impairment of air-quality-related values; providing timely response to any permit application submitted for review; and including a section on air-quality-related values and visibility in the *Resource Management Plan* and the *Statement for Management*.

Federal Water Pollution Control Act (Clean Water Act) P.L. 92-500, 33 U.S.C. § 1251 et seq., as amended by the Clean Water Act, P.L. 95-217. The Federal Water Pollution Control Act (P.L. 92-500) as amended by the Clean Water Act of 1977 (P.L. 95-217) provides for a complex set of pollution control activities. The objective of the act "is to restore and maintain the chemical, physical, and biological integrity of the Nation's waters." All federal agencies must comply with all applicable requirements for control and

abatement of water pollution; insure direct discharges of effluent conform with the strictest standards for such; obtain permits for discharge of any pollutant; and provide monitoring. Federal agencies also are encouraged to conduct needed research and training to determine causes, effects, extent, prevention, reduction and elimination of pollution. The National Park Service also must participate in area-wide planning and waste management, water quality planning and management, and establishment of standards and criteria, and establishment of water-quality monitoring systems.

Safe Drinking Water Act, P.L. 93-523; 42 U.S.C. § 300f. *et seq.*) The Safe Drinking Water Act was passed to assure that the public is provided with safe drinking water when supplied by a public water system. The act requires that water quality be established and maintained that specify types of contaminants allowed and the maximum level permitted in water delivered to a user by a public water system, including those in national parks. The National Park Service must maintain systems that can provide water within the quality standards established and must provide testing to insure its compliance.

Department of Transportation Act of 1966, P.L. 89-670, 80 Stat. 931, 49 U.S.C. § 1651 *et seq.* Restricts the use of park lands for federally supported highways and other projects requiring DOT approval. Section 4(f) mandates that no project that requires the use of land from a public park, recreation area, or wildlife or waterfowl refuges of national, state or local significance will be approved unless there is no feasible or prudent alternative and all possible planning is done to minimize harm to the area.

Floodplain Management 42 FR 26951, 3 C.F.R. 121 (Supp 177)(Executive Order [E.O.] 11988). This executive order requires agencies "to avoid to the extent possible the long- and short-term adverse impacts associated with occupancy and modification of floodplains and to avoid direct and indirect support of floodplain development wherever there is a practicable alternate." Federal agencies are directed by the act to take action to reduce the risk of flood loss, minimize the impact of floods on human safety, and restore and preserve natural and beneficial values served by floodplains.

Protection of Wetlands 42 FR 26961, 3 C.F.R. 121 (Supp 177) (E.O. 11990). Executive Order 11990 prevents, to the extent possible, the long- and short-term adverse impacts associated with the destruction or modification of wetlands, and to avoid direct or indirect support of new construction in wetlands wherever there is a practicable alternative. The order directs each federal agency in carrying out its responsibilities to provide leadership and take actions to minimize the destruction, loss or degradation of wetlands and to preserve and enhance the natural and beneficial values of wetlands.

In preparing plans for development, public use and/or resource management, the NPS must determine the locations of springs and seeps within the affected area and ensure the quality of these resources is preserved and enhanced to the greatest degree possible.

Off-Road Vehicles on Public Lands E.O. 11989 (42 FR 26959) and 11644. Prompted by widespread and increasing use by an estimated 5 million off-road recreation vehicles (motorcycles, minibikes, trail bikes, snowmobiles, dune buggies, all-terrain vehicles and others), President Richard Nixon issued E.O. 11644 on February 9, 1972. The purpose of this order was to establish policies and provide procedures that ensure that the use of

off-road vehicles on public lands will be controlled and directed so as to protect the resources of those lands, to promote the safety of all users and to minimize conflicts among various uses. Generally, this executive order called upon agency heads to develop regulations concerning designation of off-road vehicle trails in accordance with criteria established by the order.

On May 24, 1977, President Jimmy Carter issued E.O. 11989 amending E.O. 11644 in order to clarify agency authority to define zones of use by off-road vehicles on public land and in furtherance of the National Environmental Policy Act. It addressed administrative use for emergency purposes or national defense purposes and directed immediate closure of ORV routes whenever considerable adverse effects on natural or cultural resources are identified.

Resource Conservation and Recovery Act, P.L. 94-580, 42 U.S.C. § 6901. This act governs disposal of hazardous and/or solid waste including landfills (NPS Staff directive 76-20). It establishes guidelines for collection, transport, separation, recovery, and disposal of solid waste. The act creates a major federal hazardous waste regulatory program and provides assistance to establish state or regional solid waste plans.

RESOURCES

Water Resources

The lake and river waters of Glen Canyon National Recreation Area are premier park resources receiving very high levels of public use and enjoyment. Boating, fishing, swimming, water skiing, river running and waterside camping are the principal water-based activities sought by visitors to the recreation area. Since the area contains more than 255 square miles of lake surface, the Colorado River, innumerable springs and seeps in backcountry canyons, and five major tributaries, completion of the baseline inventory and subsequent monitoring of water resources is a formidable task.

The recreation area has developed a water resources management plan to address these concerns. It recommends a management program to deal with 14 significant water resource issues including identification of outstanding national resource waters, water rights, floodplains, water quality, heavy metals in fish, and water use related to range management, mineral extraction, and tar sand operations, energy-related wastes and management of hazardous materials spills.

Among the area's significant water resources is the 15 miles of free-running Colorado River between Glen Canyon Dam and Lees Ferry. This intensively used river segment is productive for rainbow trout and supports a commercial day-use rafting venture that is increasingly popular. A management plan for this area was completed in 1986 and emphasizes programs to minimize the impacts of intensive shoreline use.

The Lees Ferry river segment also is a part of Bureau of Reclamation led research program to study the effects of Glen Canyon Dam operations on downstream resources. The studies include research on trout ecology, recreation value, beach dynamics and sediment transport, and hydrology. They are intended to evaluate the effects of potential

changes in dam operations and, thus, are extremely important to management of water resources in the entire recreation area, even though they presently are focused below the dam.

Lakeshore water resources are subjected to heavy use by boaters and recreationists accessing the shoreline on non-maintained roads. This use requires monitoring for water quality and the institution of management programs to prevent deterioration of water quality. Studies are now in the preliminary phases to determine the need to require port-a-potties on all boats to reduce human waste impacts.

Vegetation

The recreation area is physiographically located within the Colorado Plateau, primarily supporting desert-shrub vegetation. The plant communities include riparian, shadscale, blackbrush, sagebrush, grassland and piñon-juniper woodland. Included in these generalized vegetation types are two endangered species, numerous candidate species, and unique plant associations found in moist alcoves known as hanging gardens. These occur on seep seams in alcoves along steep canyon walls. They support a rich, varied and luxuriant growth of plants adapted to wet conditions. Within the desert-shrub grassland communities, relict plant stands--those that have not been impacted by human-related activities--were recently found in the recreation area. These relict populations cover thousands of acres and may represent the best examples of natural grasslands in the southern Utah area.

Wildlife and Fish

The recreation area supports a wealth of animal life. Many species and large populations of small mammals, birds and reptiles may be found throughout the recreation area from the deepest canyon bottoms to the tops of the highest plateaus. Large mammals, such as bighorn sheep, beaver, mule deer and antelope, may be found. Predators such as bobcat, mountain lion, gray fox, badger, kit fox and coyote also range widely.

The desert bighorn sheep is one of the area's most important big game species. The Glen Canyon area, with its tributary side canyons and adjacent plateaus and mesas, provides excellent bighorn habitat. The park supports one of the last relict bighorn herds as well as several reintroduced herds.

The topographic diversity and abundance of prey provide suitable habitat for numerous species of predatory birds. The red-tailed hawk, great horned owl, harrier, prairie and peregrine falcons, golden and bald eagles, and the burrowing owl are among the many raptors found within the recreation area's boundaries. Osprey are frequent during migration.

Several hundred mule deer use the recreation area for winter range, especially south of the Escalante River. Limited winter range use also occurs along the San Juan River and below the Orange Cliffs. Most summer range for the deer is outside the recreation area. However, a limited number of deer are found throughout the year in tributary side canyons where riparian vegetation attracts and supports the animals.

Nearly 80 species of mammals, mostly in the rodent and bat groups, can be found in Glen Canyon NRA. Little or nothing is known about the population status and local habits of most of these animals.

Fishing is a major recreational activity at Glen Canyon, and opportunities to fish exist throughout the recreation area. Smallmouth bass, striped bass, walleye, largemouth and catfish, bluegill and black crappie are currently the major game species in Lake Powell. Fisheries management programs have been carried out for 15 years on Lake Powell, chiefly by the Utah Department of Wildlife Resources. Many uncertainties remain in the areas of fish population trends, food base and nutrient-productivity relationships.

The Colorado River below Glen Canyon Dam supports a trout population that qualifies as a blue-ribbon trout fishery. In the last few years, this fishery has been the subject of articles in several major national outdoor magazines and in a number of major newspapers. Fishermen come to the area from all over the country and from as far away as Alaska and Canada. The additional pressure has required recent adjustments in fishing regulations, such as a reduction in creel limits and the requirement that only artificial lures be used. The trout fishery remains highly productive and is managed by the Arizona Department of Game and Fish.

Threatened and Endangered Species

Seven listed threatened and endangered species are found in Glen Canyon. The recreation area hosts one endangered and one threatened species of bird, three species of endangered fish and two species of endangered plants. An eighth species, the black-footed ferret, could occur in the area but is probably extirpated.

The bald eagle, which is a threatened species, winters throughout Lake Powell. Between 35 and 50 species of bird use the lake and its tributaries for at least 3 months each winter.

The endangered peregrine falcon is found throughout the recreation area. Monitoring of the peregrine falcon population in Glen Canyon was begun in 1983 and has continued annually. A 1990 survey confirmed 52 occupied territories. Similar results were obtained in other Colorado Plateau parks, making the recreation area part of the largest natural population of peregrine falcons in the continental United States. With an average of 2.5 young where breeding occurred, it may be a self-sustaining population. However, continued thinning of egg shells has been documented, evidently caused by the effects of pesticides in the food chain. Peregrine populations thus will require continued monitoring for trends.

Glen Canyon Dam changed the aquatic ecosystem both above and below the dam so dramatically that many native species could not adapt. However, tributaries still provide suitable habitat where remnants of native fish populations still exist. The Paria, Escalante, Dirty Devil and San Juan rivers are the major tributaries that maintain flows similar to their historic ones. Among the native species found in these tributaries are flannelmouth suckers, bluehead suckers and speckled dace.

Historically present in the system also are the Colorado squawfish, humpback chub and bonytail chub, listed as endangered species, and the razorback sucker, designated a sensitive species. Squawfish and razorback sucker have been found in the Colorado River above Hite and in the San Juan River near Mexican Hat. Recent collections of young humpback chub and possibly bonytail chub in Cataract Canyon raise the possibility that upper Lake Powell may provide nursery habitat for these species.

Two species of plants--Brady pincushion (*Pedocactus bradyi*) and Jones cycladenia (*Cycladenia humilis* var. *jonesii*)--listed as endangered and threatened respectively, are found within the recreation area and are being monitored. The Brady pincushion is found in the Lees Ferry area, and the Jones cycladenia is found in the Purple Hills.

Various other plants and animals exist in the recreation area, the population status of which is undetermined but could turn out to be threatened or endangered.

Air Quality

Glen Canyon is designated as a Class II Federal Air Quality Area. The recreation area partially shares common boundaries with three national parks, all of which are Class I airsheds.

The air quality of the area was monitored prior to the start-up of the Navajo Generating Station. The average visibility of 125 miles, described in 1974 as "excellent," is now noticeably less. In 1988, the National Park Service in cooperation with other private and government organizations initiated a monitoring program designed to determine whether emissions from the Navajo Generating Station were contributing to reduced winter visibility in Grand Canyon National Park. Based on these efforts, in March 1991, the Environmental Protection Agency required the Navajo Generating Station retrofit its smoke stacks with scrubbers designed to capture 70 percent of the sulfur dioxide emissions. The scrubbers are to be in operation by 1995.

Recreation

Water-oriented sports are the predominant recreational activities at Glen Canyon. Pleasure boating, water skiing, swimming and beach camping are the main summer activities. Sport fishing and concessioner tour boat rides constitute major year-round activities.

A carrying capacity study of Lake Powell, completed in 1987, provided management information on the potential limits of boater use. It outlined the impacts that are beginning to be noticeable from existing use and discussed the possible reduction of prime shoreline campsites due to the establishment of tamarisk now that the reservoir is full. The study also showed that the average length of stay on the lake is 4.5 days. A carrying capacity study of the Colorado River between the Glen Canyon Dam and Lees Ferry is under way, but not scheduled for completion until fall 1991.

Besides boating, fishing and camping on Lake Powell, opportunities also exist for river running, hiking wilderness trails, four-wheel driving on backcountry roads, hunting and trapping.

The 15 miles of Colorado River above Lees Ferry are used by fishermen with small power boats, commercial fishing guide services and concessioner-operated motorized raft trips. These uses accounted for 213,238 visitors in 1990. Concession operated tours between Glen Canyon Dam and Lees Ferry accounted for 26,000 visitors in that year. Lees Ferry also is the point of embarkation for all river trips through the Grand Canyon.

The San Juan River from Honaker Trail to Clay Hills Crossing lies within Glen Canyon National Recreation Area. The balance is on Bureau of Land Management and Navajo Reservation lands. The river has several unique characteristics that attract river recreationists including spectacular canyon scenery, geology, history, prehistoric ruins and white water. The San Juan River is used by nonpowered rafts, kayaks and canoes with 5,176 river runners in 1989 representing 21,011 passenger days.

Backcountry use within Glen Canyon is small compared to water-oriented recreational use. The Escalante River drainage offers some of the finest opportunities in the region for desert/canyon hiking. Total visitation to the subdistrict increased over four percent from 1986 to 1987, and increased an additional 25 percent from 1987 to 1988. Total visits to the subdistrict were 14,908. Another area that attracts backcountry use is the Orange Cliffs area that recorded 3,537 visitors in 1987, but decreased to 2,242 in 1988.

Day hiking in other areas is becoming increasingly popular as a supplement to beach camping. Impact can be easily observed in most major drainages.

Minerals

The earliest mining activity in the region was associated with a discovery of gold by members of the second John Wesley Powell expedition of 1871. This event caused a flurry of prospecting activities in the area resulting in several new discoveries. The prospecting and related mining activities continued until the depression of 1893. The major occurrences of gold in the area are associated with placer deposits along the Colorado and San Juan Rivers and their tributaries. The prospecting efforts in search of gold were responsible for the development of new roads and trails throughout the region.

Considerable oil production has been occurring around the recreation area since the discovery of oil in the Pennsylvania reservoirs near Mexican Hat in 1908. Discovery of the Greater Aneth fields along the upper San Juan River followed in 1956 and the Upper Valley anticline, in the northern part of the Kaiparowits basin in 1964.

The uranium boom in the 1940s and 1950s caused a flurry of activity, giving rise to a proliferation of roads and trails throughout the backcountry of what is now the recreation area and the development of dirt airstrips in the upper portion of the area. The Ticaboo uranium deposit near Bullfrog was developed in 1976, and production was intermittent at best. The primary uranium interests currently are west of the recreation area in breccia pipe formations of the Arizona Strip.

There are no patented or unpatented mining claims located within the recreation area; however, under Title 43 of the Code of Federal Regulations, hardrock minerals including gold and uranium are leasable minerals. There are 34 existing oil and gas leases, currently in suspension, encompassing 38,000 acres within the recreation area, and 19 oil and gas lease offers pending for approximately 40,000 acres. Of the 34 existing leases, 31 are contained in the area known as the Tar Sands Triangle and are being evaluated for conversion to combined hydrocarbon leases under the Combined Hydrocarbon Leasing Act of 1981. In addition, there are 1,200 acres of private oil and gas rights in the Halls Creek area. The park's mineral management plan approved in 1980, identifies 373,000 acres available for leasing on a case-by-case basis.

A plan of operations for the *in situ* development of tar sands was submitted by private industry in December 1982 under the Combined Hydrocarbon Leasing Act. Included in this plan was the proposed conversion of 22,000 acres of oil and gas leases in the recreation area and 44,000 acres adjacent to the area to combined hydrocarbon leases, and construction of an industrial facility to extract and upgrade the petroleum. A joint National Park Service/Bureau of Land Management environmental impact statement on the proposal was prepared in July 1984 evaluating various production alternatives and identifying serious environmental concerns. The National Park Service recommended that the plan not be approved. However, a decision on the lease conversion and approval of the plan of operations is pending with the Department of the Interior.

Within the recreation area, there are 82 state school sections encompassing approximately 51,000 acres. On these, there are 39 state mineral leases covering 28,500 acres. The majority of the state leases are issued for oil and gas, but a few also include metallic minerals and were issued prior to the approval of the park's general management plan in 1979 and in areas closed to future leasing. These are being withdrawn from leasing as the leases expire. Lands adjacent to the recreation area contain known deposits of coal, uranium, tar sands and oil and gas. Coal developments have been proposed on Nipple Bench, on the Kaiparowits Plateau and in the Henry Mountains.

Grazing

Glen Canyon NRA has the largest rangeland grazing operation in the National Park System. There are 38 grazing allotments--areas of land set aside by lease for grazing livestock--used by 75 individuals. These allotments cover 80 percent of the recreation area or 976,801 acres with 26,462 total allowable animal unit months (AUMs). Average annual use over the last 5 years has been 13,722 AUMs.

Cattle are the predominant livestock species grazing on Glen Canyon NRA lands, although sheep and horses also graze in lesser numbers. There are 5 allotments grazed year round (approximately 105,000 acres) and 4 allotments in non-use. Most Glen Canyon allotments extend outside the park boundary; however, there are 5 allotments (57,879 acres) totally within the recreation area. Although not under the allotment system, sheep graze on park lands below the 3,720 foot contour on the Navajo Reservation side of the lake.

Grazing within the recreation area is administered by the Bureau of Land Management in accordance with the Glen Canyon enabling legislation. However, as provided for in the same legislation, the National Park Service is responsible for insuring that no significant adverse impacts on recreation area resources or management occur from grazing activities. A national memorandum of understanding and state interagency agreement between the Bureau of Land Management and the National Park Service were developed to coordinate and promote the effective management of livestock grazing with the management of other recreation area resources.

Bureau of Land Management Resource Area Offices are responsible for grazing management. Five such offices--headquartered in Kanab, Escalante, Hanksville, Monticello and St. George, Utah--assign allotments and AUMs, collect grazing fees and monitor range conditions within Glen Canyon.

Glen Canyon National Recreation Area, in coordination with the Bureau of Land Management, is preparing a grazing management plan in accordance with the park's general management plan. The plan will provide guidance in the evaluation of future grazing management actions for their affect on the values and purposes for which the recreation area was established. This plan will generate guidelines for the NPS in making this determination as required by the enabling legislation.

Several herds of feral animals are known to exist within the recreation area boundaries. Feral livestock are cattle, burros, horses, domestic sheep or goats left on the range. They may not be owned or claimed by anyone. They are not branded and are not accounted for under present grazing permits. Small horse herds of about 10-15 animals each exist in Middle Moody Canyon/Purple Hills area and Harveys Fear/Spencer Bench area. The herds range on both BLM and NRA lands. A small herd of burros is known to exist in the Spur area of the Orange Cliffs. Burros also range in the Neskahi-Paiute Creek, Spencer Camp, Zahn Bay and Copper Canyon areas on the south shoreline of the San Juan arm. A small herd of goats roams the Dirty Devil River drainage, and cattle can be found in Padre Canyon and Navajo/Spencer Point.

Paleontology

Along the Colorado River, where the river and its tributaries have cut through thousands of feet of sedimentary rocks, extensive fossil-bearing formations have been exposed. In other areas, fossils, petrified wood, and reptile and dinosaur tracks have been exposed from surface erosion. There are a few areas within the recreation area that have petrified wood in volumes equivalent to that in Petrified Forest National Park.

A known deposit of fossil dinosaur tracks exists in the Orange Cliffs area of the park, and a new, internationally significant find of dinosaur tracks has just been made in the Warm Creek Bay area of Lake Powell. These tracks are found in Jurassic sandstone, which is an extremely rare occurrence; and they are of at least two different species (one three-toed, one four-toed) of early dinosaurs. More than 50 tracks were found in one location and represent a rare "trackway." The shape and size of the four-toed track may indicate a totally new genus and species of dinosaur.

An extensive, buried deposit of dried mammoth and sloth dung dating from the Pleistocene epoch has been identified at a rock shelter in the recreation area. Other deposits of Pleistocene dung and associated flora have been recorded in additional areas. Deposits such as these are extremely rare and are valuable not only for their information about late Pleistocene fauna and late glacier extinction, but for paleoclimatic interpretation as well.

Two sites with skeletal remains of mammoth have been found within the recreation area. One of these sites may contain a complete skeleton. Protection, *in situ* care or excavation is urgently needed for these remains.

Cultural Resources

Archeology. Glen Canyon National Recreation Area is part of the archeologically renowned "Four Corners" area encompassing southwest Colorado, southeast Utah, northwest New Mexico and northeast Arizona. Glen Canyon, like Mesa Verde, Chaco Canyon, Canyonlands and Hovenweep, was the hub of a network of prehistoric communities and trade routes that once criss-crossed the Southwest.

Materials related to the Paleo-Indian culture have been radiocarbon dated in the Southwest between 12500 and 7000 B.C. (Jennings 1974). Finds from this period, characterized by big game hunting, have been recorded in the Glen Canyon region and are represented by widely scattered surface artifact finds in Utah. Based on present evidence, the earliest Americans apparently used the area only sporadically.

The Archaic or Desert Archaic people occupied the northern Colorado Plateau region as seasonal hunters and gatherers between approximately 6400 B.C. and A.D. 450. Schroedl (1976c) has divided the Archaic of this region into four sequential phases. The primary subsistence pattern during the early and middle phases was hunting and gathering, with maize horticulture as a supplement towards the end of the sequence. Recent investigations have identified the presence of Archaic people in Glen Canyon, located primarily on the western uplands of the Colorado River as well as in some of the side canyons of the Colorado (Schroedl 1981b, Nickens 1981, Tipps 1983). None of these Archaic sites contain architecture; they are mainly open campsites, sometimes sheltered in rocky coves.

The Anasazi Pueblo tradition began to appear in the northern Southwest shortly after A.D. 1. This cultural tradition is characterized by a more sedentary lifestyle than that of the preceding Archaic, and increased reliance on food production, manufacture of ceramic containers and development of increasingly complex social and religious institutions. Recorded data indicate that the most intensive occupation of Glen Canyon apparently occurred in Pueblo II and early Pueblo III times (ca. A.D. 1050-1225) in natural canyon alcoves with sufficient soil and water for agriculture. Typically, these Pueblo sites contain masonry and/or jacal (wattle and daub) structures representing habitation as well as storage rooms, bell-shaped storage cists and occasional pithouses. They exhibit Kayenta and Mesa Verde Anasazi traits, and some show relatively minor influences from the Fremont cultural tradition.

The Anasazi Pueblo people abandoned the area during late Pueblo III times, about A.D. 1300, probably moving farther south and east possibly because of continued droughts.

Navajo occupation began shortly after the disappearance of the Anasazi at approximately A.D. 1300. These nomadic people drifted in from the north. Their transient life style left few traces of structures or artifacts to document the pre-Anglo contact culture. The transition from Anglo-contact to reservation life is thoroughly documented by many authors.

History. The history of Europeans in the area began with the passage through the area of the Dominguez-Escalante party in 1776. The Hole-in-the-Rock Trail is a historical reminder of the Mormon missionaries and their influence in the area. Lees Ferry represents the dual theme of the Indian Wars and pioneer settlement with the 1874 construction of a government fort and subsequent Mormon settlement across the Colorado River beginning in the early 1870s. The theme of government exploration is represented by the two voyages of discovery by John Wesley Powell in 1869 and 1871.

Mining activities have also left a physical record on the landscape. Remains date from the Gold Rush period of the 1880s through the early 1900s to the great uranium boom of the late 1940s and 1950s.

LAND USES AND TRENDS

Glen Canyon National Recreation Area is composed of 1,255,400 acres. There are 82 state sections within the recreation area: 64 sections (40,960 acres) of surface and subsurface ownership and 18 sections (11,520 acres) of subsurface ownership. There are an additional 11,999.52 acres of state land as submerged riverbed. Project Bold, a Utah state initiative in the early 1980s, proposed to consolidate holdings within the state through land exchange. A proposal in 1987 by the Governor of Utah proposed to exchange scattered state sections (approximately 80,000 acres) in Capitol Reef National Park and in Glen Canyon for consolidated land areas along Lake Powell. Similar proposals involving from 15,000 to more than 100,000 acres of park land in seven parcels were submitted to Congress in 1988 by the Governor of Utah as draft legislation for land exchange.

There are 1,200 acres of private oil and gas rights within Glen Canyon, the majority of which are submerged. At present, there are 34 federal oil and gas leases encompassing 38,000 acres, and 39 state mineral leases over an additional 28,500 acres. There are oil and gas lease offers pending for approximately 160,000 acres more.

There is one 491-acre inholding near Wahweap that is presently under development including a mobile home park, condominiums and single-family home sites and a proposed hotel complex.

Grazing was provided for in the park's enabling legislation, and it is managed by the Bureau of Land Management in consultation with the park. Currently, there are 39 allotments encompassing 976,801 acres, or approximately 80 percent of the recreation area.

There are five national park service administered rights-of-way within the recreation area:

1. R/W1440-86-002 Arizona Dept. of Transportation--State highway
2. R/W1440-86-003 Arizona Dept. of Transportation--Waterline
3. R/W1440-86-004 Arizona Dept. of Transportation--Highway Maintenance Yard
4. R/W1440-86-005 U.S. West Communications--telephone facilities
5. R/W1440-86-006 City of Page, Arizona--electrical distribution

CONCESSIONS

Commercial visitor services are an integral part of most visitors' experience at Glen Canyon. These services are provided through four concession contracts, three concession permits and approximately 85 commercial use licenses.

The park's principal concessioner is ARA Leisure Services, Inc., which purchased the holdings of Del E. Webb Recreational Properties, Inc. in 1988. The Navajo Nation is the other major concessioner, especially for future development on the southern shoreline of Lake Powell where it adjoins the Navajo Reservation.

Six marinas provide a multitude of services that vary by location, including fuel, boat tours, rental boats, boat storage, lodging, groceries, food service, and many others.

Wahweap and Dangling Rope Marinas are operated under a single Concession contract that expires on December 31, 1998. This contract was amended in 1988 to authorize a substantial relocation and expansion of facilities into the Stateline area of Wahweap. In 1991, the Concessioner constructed a boat repair facility and boat rental facility at Stateline (Utah) in order to relieve congestion at the Wahweap Marina.

Bullfrog, Halls Crossing and Hite Marinas originally were authorized and operated under three separate contracts, which were subsequently acquired by Del Webb. On expiration, the three contracts were revised and combined into one uplake contract that expires December 31, 2007.

Both the uplake and the downlake contracts are held by ARA Leisure Services, Inc., following the buy out of Del Webb in December 1988.

The San Juan Marina, located at Paiute Farms, was destroyed by a flash flood in August 17, 1989. The temporary site has been restored to natural conditions and the contract with the Navajo Nation has been suspended pending the determination of a permanent future location of the San Juan Marina.

The Navajo Nation has proposed a seventh marina to be located at Antelope Point near Page, Arizona. The NPS has approved the concept, and a feasibility study was completed in late 1983. In 1986, a joint planning effort resulted in the preparation and approval of a development concept plan for Antelope Point. Contract negotiations were entered into with the Navajo Nation, but they were terminated at the request of the nation because of differences between the Navajo Nation and its proposed subconcessioner. Negotiations may begin again at any time.

Motorized raft trips on the river between Glen Canyon Dam and Lees Ferry are provided under a concession contract with Wilderness River Adventures, which expired by limitation of time on December 31, 1990. A renewal contract has been prepared.

Concession permits are held by Samaritan Health Services for operation of a medical clinic at Bullfrog, by Ken Sleight for backcountry tours, and by Sheila's Dam Shop for a gift shop in the Carl Hayden Visitor Center at the dam.

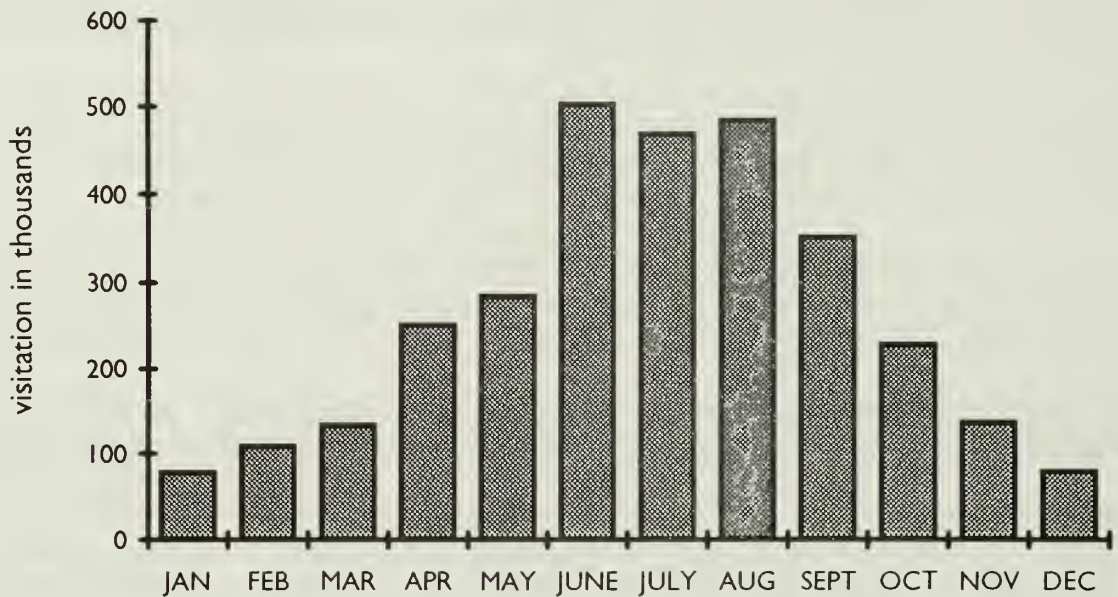
Commercial use licensees provide recreation-related services such as fishing guides, hiking and camping tours, and scuba diving, as well as a variety of other services.

Well over 80 percent of the visits to Glen Canyon are recorded in the Wahweap area of the park. In terms of concession revenues to Del Webb (now ARA), however, the Wahweap Marina accounts for less than half the gross revenues. In 1990, gross sales of ARA Leisure Services in Arizona accounted for 52.25 percent of the total, while sales at Dangling Rope, Bullfrog, Halls Crossing and Hite Marinas accounted for 47.75 percent. In June 1991, boat rentals at Wahweap were relocated to the Stateline area. This move will result in a greater percentage of the revenue being generated in Utah.

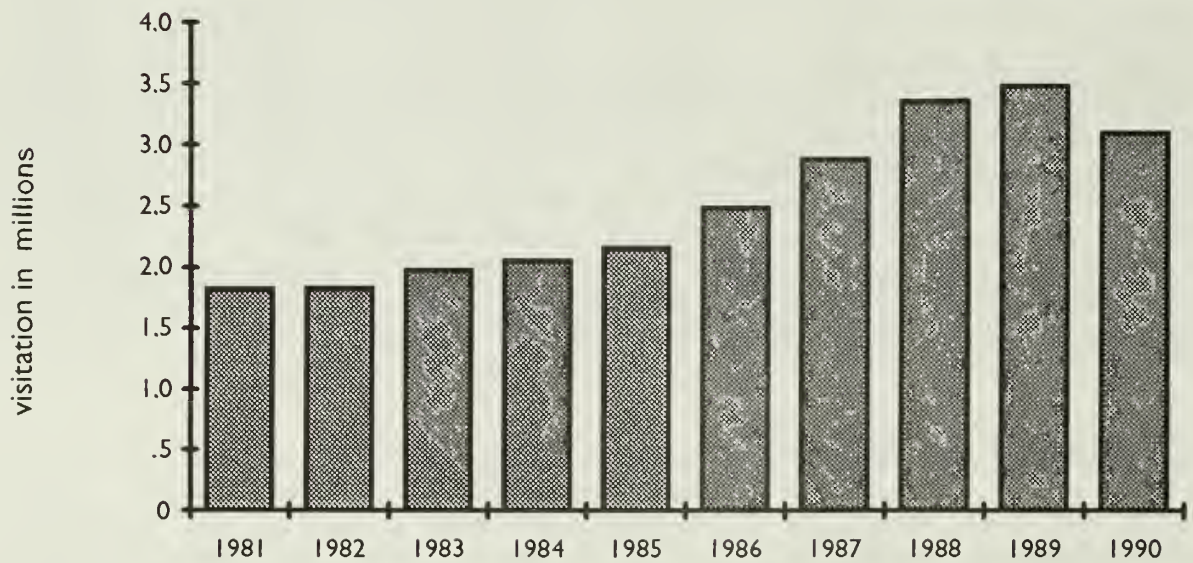
Because of the government's inability to obtain funding for development needed to provide for the fast growth in visitation to Glen Canyon, an innovative fund was established in 1987. The Set-Aside program, as it is known, is funded through the setting aside by the major concessioner of five percent of its gross sales to be used for the construction of government facilities. The five percent is made up of a half-percent contribution by the concessioner and four and one-half percent pass-through cost to the park visitor. The fund is used for the construction and rehabilitation of infrastructure, which supports concession services, provides needed visitor facilities and accomplishes management goals of the National Park Service. Facilities constructed through the set-aside program become government property upon completion.

VISITOR USE ANALYSIS

Visitation to Glen Canyon has been on an upward trend since its establishment as a national recreation area in 1972. That in itself is not hard to understand in that as the reservoir behind the Glen Canyon Dam began to fill and development along the shoreline provided increasing services, use increased. However, the phenomenal growth since the reservoir reached its full pool in 1980 was not anticipated when the project was in the planning stages. Visitation was not projected to reach the 500,000 mark until the year 2000. It had exceeded that by 1967.



1990 Monthly Visitation



Annual Visitation

Glen Canyon National Recreation Area

Visitation increased by 57 percent between 1982 and 1987 and exceeded 3.5 million visits in 1988. Based on a 1986 survey of lake visitors, over 40 percent of the visitors to Glen Canyon are from southern California.

Of perhaps greater importance in terms of impacts and visitor expectations is the average length of stay of visitors. Based on all factors such as boat rentals, boat trailer parking, campground use and lodging, the average length of stay for Glen Canyon visitors is 4.5 days. This is one of the highest averages in the National Park System, and has been confirmed by both the 1986 survey and one in 1987.

A July 1988 visitor survey of backcountry-lakeshore visitors showed that 78 percent came in a group of at least 6 persons, with 36 percent in groups of 11 or more people. The majority (68 percent) of lakeshore visitors stayed at least 5 nights in the recreation area. Over one-third of the visitors had been to Glen Canyon from 2 to 4 times previously, while 26 percent had visited at least 10 times. The final report on the 1989 Backcountry Visitor Use Survey is due in 1991.

Visitor use at the recreation area has leveled off following rapid increases in the 1980s. Although the visitor season generally is considered to be April through October, the traditional months of June, July and August continue to receive the highest number of visits, accounting for about 50 percent of the visitation. The shoulder months of April, May, September, and October add up to another 33 percent of the total. In 1990 the visits during each of the three summer months exceeded 350,000, with July exceeding 500,000. Only January and December of 1990 showed fewer than 100,000 visits per month. Total visitation to Glen Canyon in 1988 was 3,264,944, in 1989 was 3,163,904, and in 1990 was 3,103,431.

Visitation to areas parkwide reported varying levels in 1990 visitation over 1989. Visitation at Wahweap decreased 14 percent, Lees Ferry increased 11 percent, Bullfrog decreased 5 percent, Halls Crossing decreased 5 percent, and Hite increased 6 percent.

Today, Glen Canyon is within one-day's drive for 25 million people in eight metropolitan areas including San Diego and Los Angeles, California; Phoenix and Tucson, Arizona; Las Vegas, Nevada; Salt Lake City, Utah; Denver, Colorado; and Albuquerque, New Mexico. Visitation growth is expected to continue as more people migrate to the sun belt regions of the South and Southwest.

FACILITIES AND EQUIPMENT ANALYSIS

Historic Structures

| Structure Name | Historic Structure Number | National Register Date | Location |
|--------------------------|---------------------------|------------------------|------------------------------|
| Barn | HS 236 | 5/19/78 | Lonely Dell Ranch |
| Dugout | HS 234 | 5/19/78 | Lonely Dell Ranch |
| Lee Blacksmith Shop | HS 233 | 5/19/78 | Lonely Dell Ranch |
| Lee Cabin | HS 232 | 5/19/78 | Lonely Dell Ranch |
| Lees Ferry Chicken House | HS 224 | 3/15/76 | Lees Ferry |
| Lees Ferry Fort | HS 220 | 3/15/76 | Lees Ferry Historic District |
| Lees Ferry Post Office | HS 221 | 3/15/76 | Lees Ferry Historic District |
| Lees Ferry Root Cellar | HS 225 | 3/15/76 | Lonely Dell Ranch |
| Lees Lookout | HS 227 | 5/19/78 | Lees Ferry Historic District |
| Old Spencer Cabin | HS 222 | 10/15/89 | Lees Ferry Historic District |
| Spencer Steamboat | HS 226 | 5/19/78 | Lees Ferry Historic District |
| Weaver House | HS 235 | 5/19/78 | Lonely Dell Ranch |

National Register of Historic Places Properties

| Structure Name | National Register Date |
|-------------------------------------|------------------------|
| Defiance House | 12/20/78 |
| Davis Gulch Pictograph Panel | 06/05/75 |
| Hole-in-the-Rock | 11/03/75 |
| Lees Ferry Historic District | 03/15/76 |
| Lonely Dell Ranch Historic District | 05/19/78 |

There are two important National Register Historic Districts at Lees Ferry that include a number of significant structures and features. These are the Lees Ferry and the Lonely Dell Ranch Districts.

The Lees Ferry District contains four major stone structures of different ages and historical significance. The Lees Ferry Fort was constructed in 1874 as a trading post for the Navajo Indians and for protection. The post office was built around 1910 and is adjacent to the Lees Ferry Fort. The other two buildings are located a short distance away from the fort and post office. The first was built somewhere around 1911 as part of the Spencer mining operation, and the second was built in the 1950s by the U.S. Geological Survey as a temporary quarters for the men taking readings from the gauging station. In addition to these buildings, numerous other small structures and features can be found in the district.

The Lonely Dell Ranch District contains a mixture of buildings from the original settlement of the area up to the late 1950s. There are four buildings from the 1870s--a blacksmith shop, a small cabin, a dugout cellar and a barn. The stone ranch house was built in 1937 or 1938 with the wood frame addition having been constructed about 1958. There is also a cemetery within the boundaries of the old ranch.

Nonhistoric Structures - National Park Service

Bullfrog Basin

- 1 boat pumpout station with four pumps
- 1 boat dock, government; 75 linear feet
- 1 campground, 86-sites plus 2 undeveloped loops
- 1 amphitheater, 100 SEAT
- 6 comfort stations
- 1 contact facility/clinic/jail holding facility/officer (8,100 SF)
- 2 courtesy docks, 120 linear feet
- 1 district maintenance building
- 1 dump station, trailers
- 1 fish-cleaning station
- 1 ferry ramp
- 4 housing units, duplex
- 13 housing units, single-family
- 7 housing units, mobile home
- 1 launch ramp, public
- 1 maintenance shop/firehouse/warehouse
- 1 picnic area with shade structures
- 6 vault toilets
- 3 well houses

Dangling Rope

- 2 access ramps to housing area and maintenance facilities
- 7 boat pumpout stations
- 1 comfort station
- 1 contact station, visitors
- 1 floating marina structure, 28,812 square feet

STATEMENT FOR MANAGEMENT - GLEN CANYON NRA

- 1 generator/maintenance building
- 3 housing units, duplex
- 1 housing unit, 6-person dormitory
- 1 recreation building
- 2 storage buildings
- 1 storage structure, floating
- 1 well house
- 1 fire house storage building for marina pumps and equipment

Escalante

- 1 housing unit/visitor contact, mobile home

Halls Crossing

- 1 boat pumpout station with four pumps
- 1 campground, 65 site
- 1 comfort station, portable
- 3 comfort stations
- 1 contact station/ranger station
- 1 courtesy dock system, 180-linear feet
- 1 dump station, trailers
- 1 fish-cleaning station
- 1 ferry ramp
- 4 housing units, single family
- 3 housing units, mobile homes
- 1 launch ramp, public
- 1 maintenance shop/warehouse/firehouse
- 2 vault toilets
- 1 well house/chlorination building
- 1 generator building

Hite

- 1 campground, undeveloped
- 1 comfort station, portable
- 1 contact station/storage area
- 1 courtesy dock, 60-linear feet
- 1 dump station, trailers
- 1 fire house
- 2 housing units, mobile homes
- 2 housing units, single-family
- 1 launch ramp, public
- 4 vault toilets
- 1 water treatment plant building

Lees Ferry

- 1 campground, 58 sites with picnic tables, grills and sun screens
- 3 comfort stations
- 1 contact station/ranger station
- 1 dump station, trailers
- 4 housing units, single family
- 1 housing unit, mobile home
- 1 launch ramp, public
- 1 maintenance workshop
- 1 storage shed
- 2 vault toilets, concrete
- 7 fiberglass vault toilets along river
- 1 water treatment plant building

Lone Rock

- 8 vault toilets

Page

- 1 headquarters building, 5,000 square feet
- 13 housing units, single family
- 1 hangar/radio shop

Wahweap and Stateline

- 1 amphitheater, 300-seat
- 1 amphitheater projection building
- 1 amphitheater stage/screen
- 1 boat dock, government boats, 2,388 square feet
- 2 boat pumpout stations with six pumps
- 1 campground, 178-site plus 1 group loop with 8 sites and 1 undeveloped loop
- 1 campground contact station
- 2 comfort stations, portable and accessible to persons with disabilities
- 11 comfort stations, 3 with access for persons with disabilities
- 1 contact station/ranger station/office
- 4 courtesy docks, 440 linear feet
- 1 dump station, trailers
- 1 fish-cleaning station
- 1 fuel dock/repair dock, government boats
- 11 housing units, single family
- 2 housing units, mobile homes
- 2 housing units, 4-plex
- 1 launch ramp, government
- 2 launch ramps, public

STATEMENT FOR MANAGEMENT - GLEN CANYON NRA

- 1 maintenance shop/office
- 1 picnic area with shade structures
- 4 shade structures at overlooks
- 2 warehouses
- 3 well houses
- 1 historic marker

One visitor center with exhibits at Glen Canyon Dam. NPS operates visitor center and performs cleaning and minor maintenance/repair. The Bureau of Reclamation owns the building and is responsible for any major maintenance/repair.

Utilities

Bullfrog

- 1 electric distribution system
- 6 lift stations
- 1 propane distribution system
- 1 sewage lagoon system, 4 cells, 20 acres
- 1 sewage collection system
- 3 wells and pumping systems and chlorination facilities
- 1 water distribution system
- 2 water-storage tanks, 500,000 gallons each
- 13 irrigation systems; campground, picnic area and housing area

Dangling Rope

- 1 electric generating system with two, 310-kw generators
- 1 electric distribution system
- 4 lift stations
- 1 sewage lagoon system, 3 cells, 2.09 acres
- 1 sewage collection system
- 1 water distribution system
- 1 water-storage tank, 55,000 gallons
- 1 well with pumping system
- 1 irrigation system in housing area

Halls Crossing

- 1 electric generating system with two, 400-kw generators and one, 230-kw generator
- 1 electric distribution system
- 5 irrigation systems, campground and housing area
- 1 lift stations
- 1 sewage lagoon system, 3 cells, 2.75 acres
- 1 sewage collection system
- 2 wells and pumping systems and chlorination facilities
- 1 water distribution system
- 1 water-storage tank, 300,000 gallons

Hite

- 1 electric distribution system
- 1 lift station
- 1 sewage lagoon system, 3 cells, 1.1 acres
- 1 sewage collection system
- 1 water-intake structure with pumping system
- 1 water treatment plant
- 1 water distribution system
- 1 water-storage tank, 55,000 gallons

Lees Ferry

- 5 irrigation-water systems serving historic Lonely Dell Ranch and housing
- 9 septic systems, separate
- 1 water-intake structure with pumping system
- 1 water treatment plant
- 1 water-storage tank, 150,000 gallons
- 1 water distribution system

Wahweap

- 17 irrigation systems
- 6 lift stations
- 1 sewage lagoon systems, 6-cells, 17.3 acres
- 1 sewage collection systems
- 3 water storage tanks, 500,000 gallons each
- 1 water distribution system
- 3 wells and pumping/chlorination systems

Roads and Trails

There are a total of 48.09 miles of park-owned paved roads within the recreation area. The majority of roads, 442.6 miles, are unpaved and most are non-maintained and in primitive condition.

STATUS OF PLANNING

Following is a listing of planning documents completed or under way for projects within Glen Canyon National Recreation Area.

STATEMENT FOR MANAGEMENT - GLEN CANYON NRA

| NAME OF PLAN/STUDY | PREPARED BY | DATE APPROVED | COMMENT ON CURRENCY |
|---|---------------------|---------------|---|
| General Management Plan, Wilderness Study, Road Study and Final Environmental Study | DSC | July 1979 | Current |
| Park Comparability Report | WASO Task Force | April 1988 | Completed 1988 |
| Grazing Management Plan | GLCA | | In Progress |
| Mineral Management Plan | GLCA | March 1980 | Current |
| Natural Resource Management Plan | GLCA | June 1986 | Current to 1989 |
| Tar Sand Triangle Utah, Draft Environmental Statement, Proposed Lease Conversion | NPS/BLM | | Prepared 1984; No action by the Secretary |
| Water Resource Management Plan | GLCA/WASO | April 1987 | Current |
| Wild and Scenic River Study for San Juan River | BLM/NPS | | In progress |
| Wilderness Recommendation | DSC | | Prepared in Sept. 1980; no action taken |
| Cultural Resource Management Plan | GLCA | April 1987 | Needs updating |
| Scope of Collections | GLCA | | Needs revision |
| Ruins Stabilization Plan | GLCA | | Current |
| Visitor Use Survey Backcountry Visitor | University of Idaho | 1988 | Current |

| | | | |
|--|---|---------------|--------------------------------|
| Feasibility Study Agricultural Community | Utah State University | 1984 | |
| Carrying Capacity Study and Executive Summary | DSC | November 1982 | Updated 1987 by document below |
| The Carrying Capacity of Lake Powell, A Management Analysis of Capacity for Boater Recreation | GLCA/RMR | November 1987 | Current |
| Feasibility Study Ferry Service | Parsons Brinkerhoff | July 1981 | |
| Interpretive Prospectus | RMR/DSC | May 1980 | Needs update |
| Engineering Report Burr Trail | Creamer & Noble | 1984 | |
| Road Study | NPS / Utah State Road Commission w/FHWA | 1974 | |
| Aids to Navigation Plan | GLCA | July 1986 | Current |
| Feasibility Study Antelope Point | Trico International Inc. | August 1977 | Update needed |
| Economic Feasibility Study, Antelope Point | DSC | November 1983 | |
| Final Development Concept Plan and Environmental Assessment Antelope Point | GLCA/ Navajo Nation | March 1986 | Current |
| Environmental Assessment and Management/Development Concept Plans for Lake Powell's Accessible Shoreline | RMR | April 1988 | Current |
| Environmental Assessment, Boulder-Bullfrog Road | RMR | 1985 | |

STATEMENT FOR MANAGEMENT - GLEN CANYON NRA

| | | | |
|---|----------------------------|------------------------------|---------------------|
| Environmental Assessment and Development Concept Plan, Bullfrog Basin | Stypula Associates/ DSC | January 1977 | Updated 1985 |
| Environmental Assessment and Amended Development Concept Plans, Bullfrog Basin and Halls Crossing | RMR | June 1985 | Current |
| Amended Development Concept Plan, Bullfrog Basin | RMR | September 1985, 1987 1990 | Amendment under way |
| Environmental Assessment and Development Concept Plan, Halls Crossing | Stypula Associates/ DSC | October 1976 | Updated 1985 |
| Amended Development Concept Plan, Halls Crossing | RMR | September 1985 | Current |
| Environmental Assessment and Development Concept Plan, Hite | RMR | November 1982 | |
| Development Concept Plan and FONSI, Hite | DSC | August 1983 | Needs updated |
| Environmental Assessment Development Concept Plan Lees Ferry | RMR | December 1985 | Current |
| Final Development Concept Lees Ferry | RMR | April 1986 | Current |
| Environmental Assessment Proposed Road, Ramps, Parking Lot and Raft Boarding Jetty at Lees Ferry | DSC | January 1976 | |
| Upriver Recreation Plan and Environmental Assessment for Lees Ferry | GLCA | February 1984 | Draft not approved |
| Upriver Recreation Plan Lees Ferry | GLCA | August 1984 | Current |

| | | | |
|---|-----|-------------------|----------------------|
| Assessment of Alternatives Development Concept Plan, Lone Rock | RMR | May 1979 | |
| Development Concept Plan FONSI, Lone Rock | RMR | August 1981 | Current |
| Orange Cliffs/Maze Development Concept Plan | RMR | | Begun but delayed |
| Draft Environmental Assessment, Development Concept Plan, Wahweap | DSC | September 1982 | |
| Record of Decision and FONSI, Wahweap DCP | DSC | December 1982 | |
| Development Concept Plan Wahweap | DSC | July 1983 | Current |

EXISTING MANAGEMENT ZONING

Management zoning for Glen Canyon National Recreation Area is divided into four zones (see Management Zoning Maps): Natural Zone, Recreation and Resource Utilization Zone, Development Zone and Cultural Zone.

The Natural Zone, which encompasses 668,670 acres, is the largest management zone in the recreation area. It includes the area's outstanding scenic resources, relatively undisturbed areas, i.e., isolated and remote from the activities of man, and bordering complementary lands. The emphasis in this zone is on maintaining natural processes and existing conditions and on preserving the land, water and other natural resources. Backcountry recreation is encouraged in this zone. Grazing occurs in this zone through permits. Use of vehicles and mechanized equipment is prohibited in this zone.

The next largest zone is the Recreation and Resource Utilization Zone with 557,890 acres, including Lake Powell and most of the adjoining land not included in the Natural Zone. This zone allows park management to provide a variety of recreational experiences and permits mineral leasing and grazing to the extent they are consistent with conserving the area's scenic, scientific and cultural resources. Motorized craft are allowed on the lake, and mechanized vehicles are permitted on designated roads and in the Lone Rock, off-road use area. Utility and transportation systems may be allowed in this zone where appropriate.

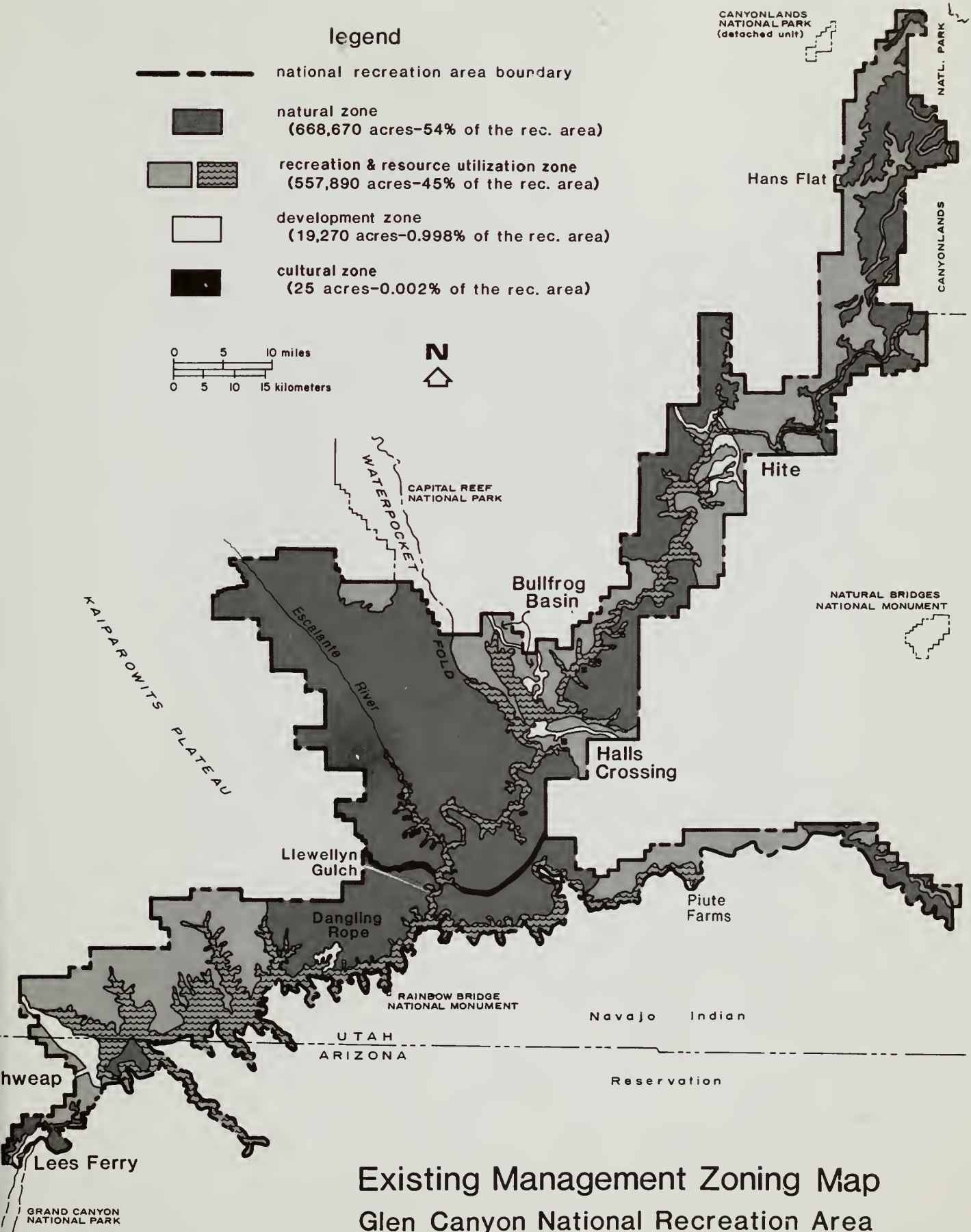
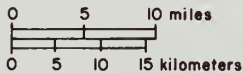
Glen Canyon's Development Zones are designated where lands are identified for recreational support facilities and visitor services. These include 19,270 acres designated overall in Lees Ferry, Wahweap/Lone Rock, Dangling Rope, Bullfrog Basin, Halls Crossing and Hite. Six potential development sites also were identified on Parcel B lands adjoining

the Navajo Reservation. A minor developed area exists at Hans Flat in the Orange Cliffs. Certain road corridors are included in the zone for access to facilities. This zone also includes Glen Canyon Dam. Activities permitted in the Recreation and Resource Utilization Zone also are permitted in the Development Zone with the exception of grazing and mining.

The Cultural Zone, which includes 25 acres, is managed to preserve, interpret and restore where deemed appropriate by professional analysis, the archeological and historical resources of the recreation area. Inventory, interpretation and research are emphasized here as well. The zone includes the Lonely Dell Ranch and Lees Ferry Historic District, the Davis Gulch pictograph panel, Defiance House Ruin, and Hole-in-the-Rock Trail. The actual acreage included in these and proposed future areas exceeds the 25 acres, but is managed for these values.

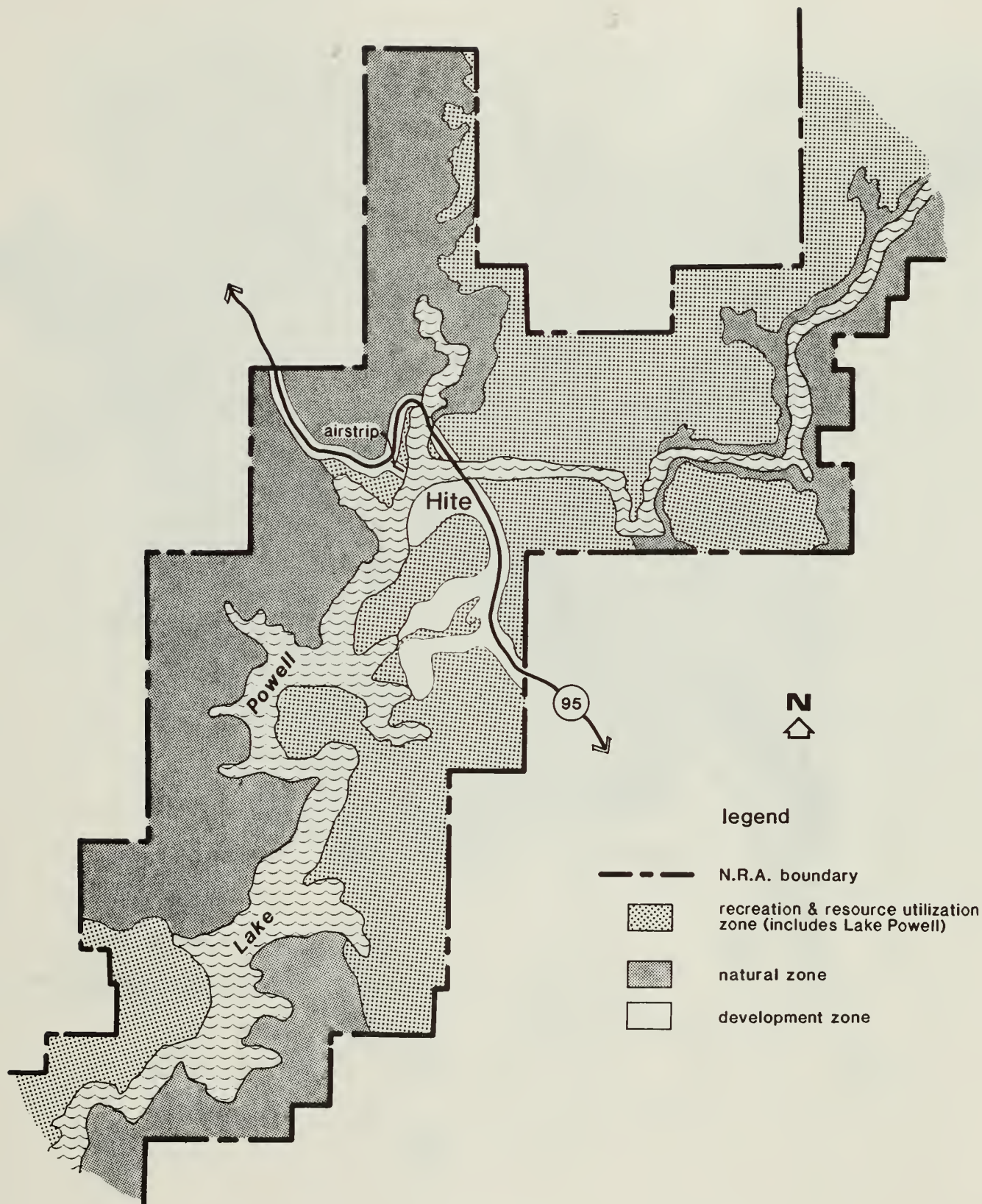
legend

- national recreation area boundary
- natural zone
(668,670 acres-54% of the rec. area)
- recreation & resource utilization zone
(557,890 acres-45% of the rec. area)
- development zone
(19,270 acres-0.998% of the rec. area)
- cultural zone
(25 acres-0.002% of the rec. area)

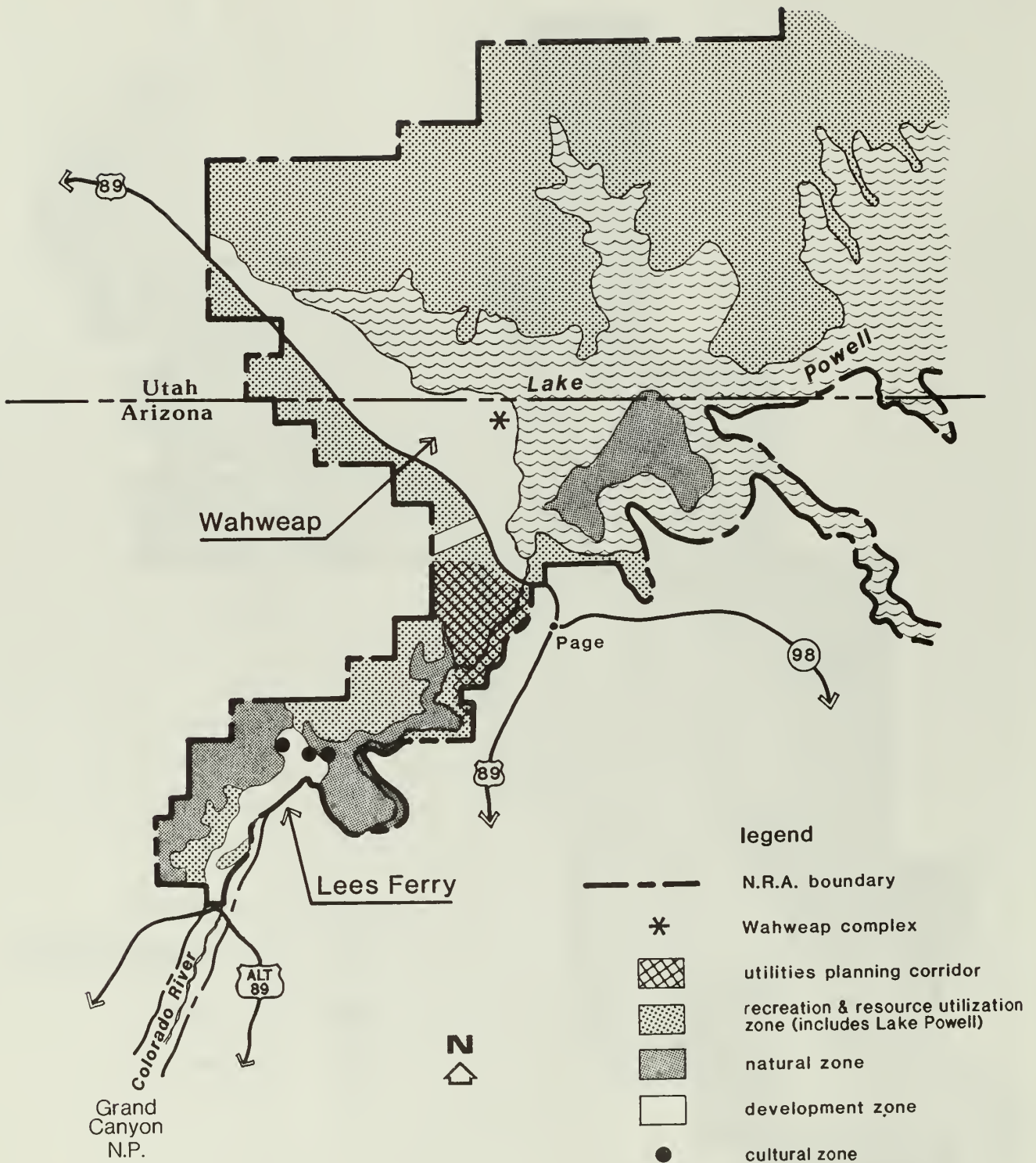


Existing Management Zoning Map Glen Canyon National Recreation Area Arizona - Utah

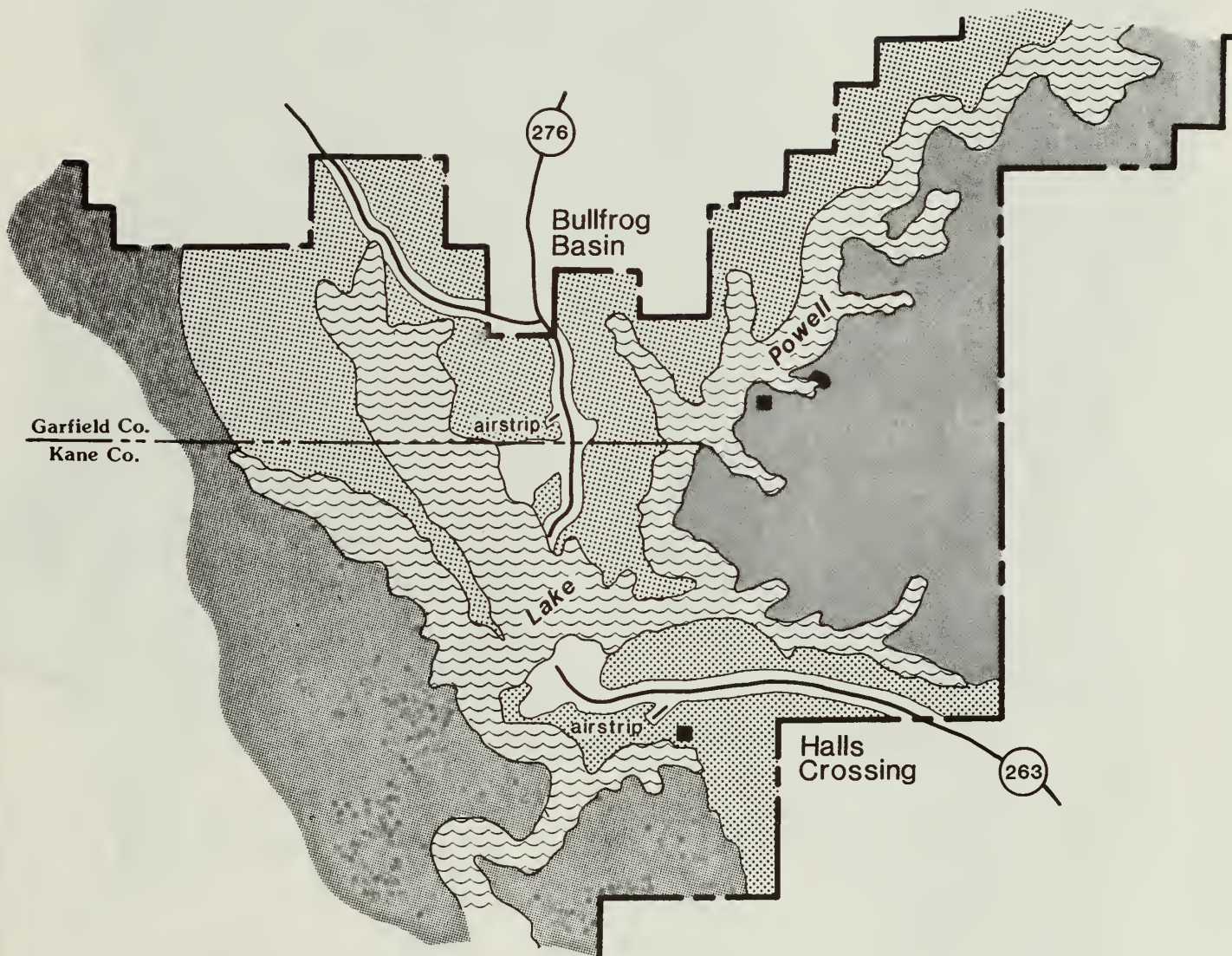
United States Department of the Interior - National Park Service



Existing Management Zoning Map
Hite Area
 Glen Canyon National Recreation Area



Existing Management Zoning Map
Wahweap-Lees Ferry Area
Glen Canyon National Recreation Area



legend



N.R.A. boundary



recreation & resource utilization zone
(includes Lake Powell)



natural zone

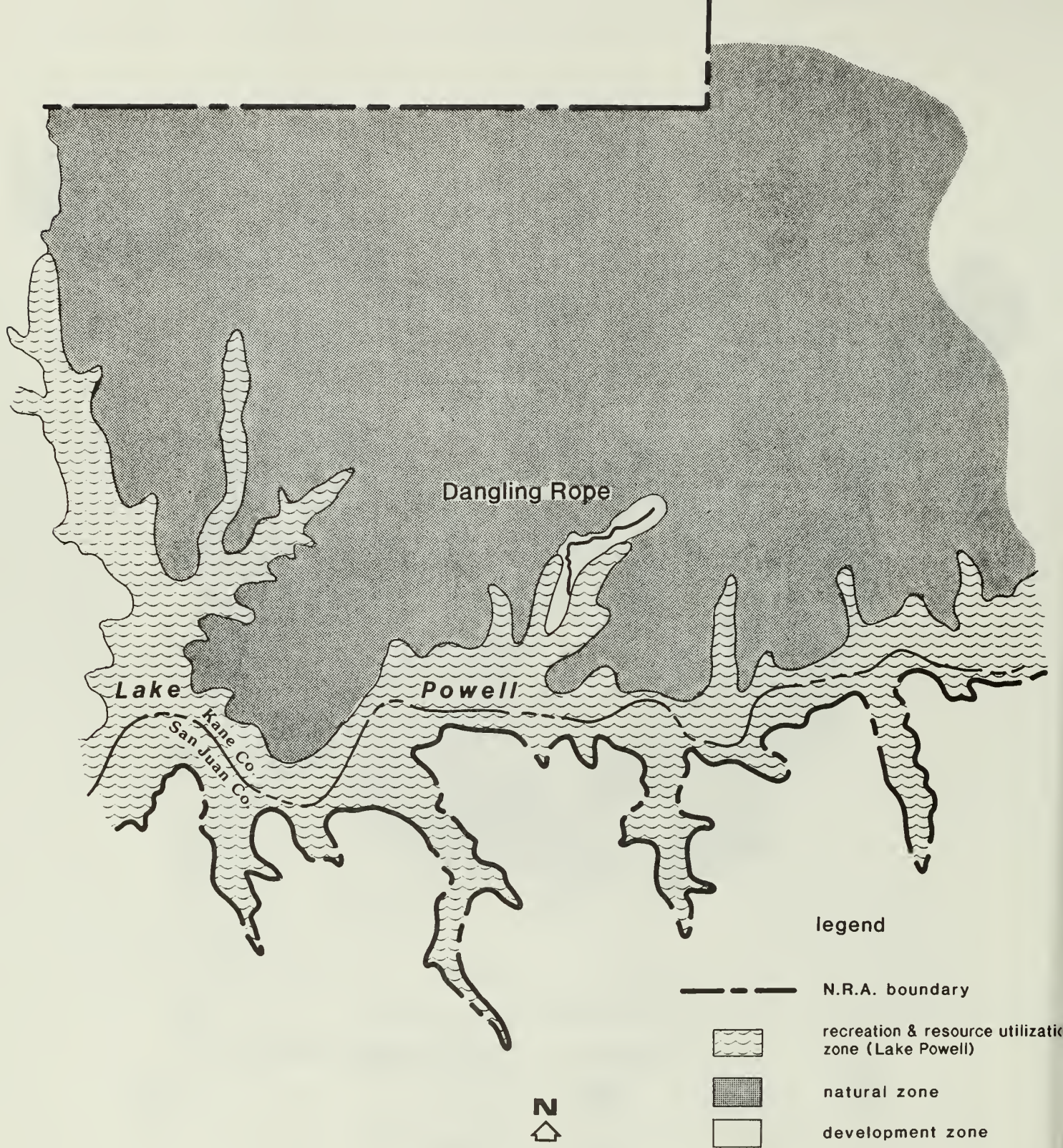


development zone

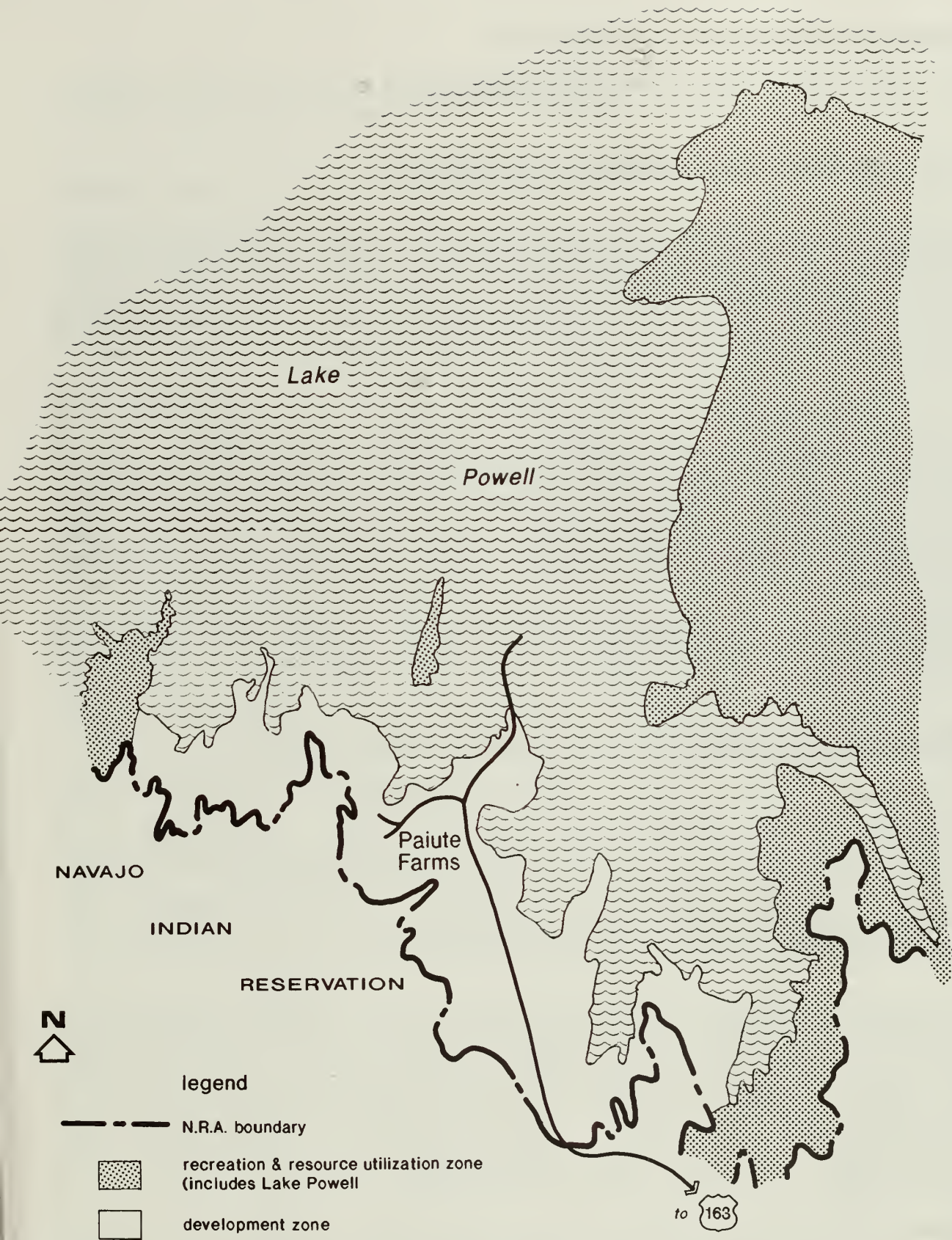


cultural zone

Existing Management Zoning Map Bullfrog Basin-Halls Crossing Area Glen Canyon National Recreation Area



Existing Management Zoning Map
Dangling Rope Area
Glen Canyon National Recreation Area



Existing Management Zoning Map
Paiute Farms Area
 Glen Canyon National Recreation Area

MAJOR ISSUES

MANAGEMENT OF HAZARDOUS MATERIALS

In 1990, the Inspector General for the Department of the Interior conducted an investigation into the disposal of potentially hazardous materials into the waters of Lake Powell. During this same period, the states of Arizona and Utah cooperatively conducted a similar investigation into violations of the resource conservation and recovery act. Letters of violation were issued to ARA Leisure Services for their storage and handling of hazardous materials, and the park was issued letter of warning by the state of Utah.

In response to the federal and state regulations, the park and its concessioner have initiated active programs in the management of potentially hazardous materials. Disposal of accumulated hazardous wastes and potentially hazardous waste is being initiated and prevention of activities that could result in the discharge of industrial or hazardous materials on lands or into waters of the park. The park and concessioner are evaluating their waste streams to identify products and methods to minimize the handling and generation of hazardous waste. In addition, the park is restricting the locations where visitors may work on, or have the concessioners work on personal watercraft, vehicles or aircraft. The park is also seeking to expand resource monitoring programs to detect trace elements that may be introduced into lake waters. The cost of the disposal and monitoring programs are estimated to be approximately \$50,000 in FY91.

REMOVAL OF UNDERGROUND FUEL STORAGE TANKS

In 1990 the park issued a contract for the removal of National Park Service owned and operated underground storage tanks (UST) at the Halls Crossing and Bullfrog development areas. At both sites, it was determined there were leaks in the tanks and a substantial quantity of fuel contaminated soil. The Halls Crossing site was mitigated and the state of Utah concurred with the clean up effort. At the Bullfrog site approximately 2,000 cubic yards of contaminated soil was removed but the site continues to exceed the state standards and additional mitigation will be required.

In 1991 the park received funding for the removal of thirteen underground storage tanks in the Wahweap Development Area. This is after testing indicated three of the tanks and two of the distribution systems were leaking. All thirteen USTs will be removed in 1991 and limited site assessment will be completed. This includes testing the soils where tanks were removed and drilling to determine the extent of contamination. Additional site assessment analysis will be required in 1992 and development of site remediation plans will be required for the Wahweap and Bullfrog sites. The cost of development and implementation of these plans could exceed \$1,000,000.

With the removal of the underground and aboveground storage facilities, the National Park Service will no longer be in the fuel storage and dispensing business. All future fuel

purchases will be made through the concessioner or facilities located outside the boundary of the recreation area.

IMPROVEMENTS TO THE BURR TRAIL

In 1985, Garfield County proposed to upgrade the 66-mile Boulder to Bullfrog Road locally known as the Burr Trail. Approximately 15 miles of the road are within the boundaries of Capitol Reef National Park and Glen Canyon National Recreation Area. The county is claiming ownership of the road under revised Statute 2477. The National Park Service and the Bureau of Land Management jointly prepared an environmental assessment to upgrade the road as a National Rural Scenic Road under the management of the National Park Service.

The proposed National Rural Scenic Road did not materialize, yet the county continues to maintain the road. Maintenance includes minor realignments, improving the road base and chip/sealing the surface. Garfield County funded an environmental assessment in 1988, which evaluated those portions of the road that occurred on the public domain. The county's maintenance of the road has undergone a variety of legal challenges from the Utah environmental community.

In 1991 the county is proposing to upgrade those portions of the road that occur within the two park units. In 1986, \$8.1 million was appropriated for construction of the road within the parks. It is the National Park Service position that an environmental impact statement that addresses the cumulative impact of improving the road is necessary. In 1991 the NPS requested authorization from Congress for \$300,000 to prepare the EIS. Garfield County agreed to preparation of an EIS. The funding was not authorized in 1991 and the service is pursuing funding again in 1992.

STATE LAND EXCHANGE

There are 60,000 acres of land owned by the state of Utah within the authorized boundary of the national recreation area. Some discussions have taken place in the past about the possibility of exchanging these inholdings for other public domain lands.

In October 1987, the Utah governor announced a proposal to exchange these widely scattered, state school section lands along with some in Capitol Reef National Park for 60,000 acres of land on the shores of Lake Powell. In August 1988 the governor drafted legislation for introduction into the United States Congress that increased from five to six the number of lakeside development sites proposed by the state and increased the number of acres proposed for acquisition to 100,000 acres. The six locations include: Farley Canyon (10,240 acres); Bullfrog/Hansen Creek (12,400 acres); Halls Crossing (6,400 acres); Llewellyn Bench (15,000 acres); Lone Rock/Warm Creek (38,980 acres); and Blue Notch/Red Canyon (10,000 to 20,000 acres). Of these sites, Halls Crossing and Llewellyn Bench include the shoreline and main channel of Lake Powell.

The issue involves not only a potentially precedent-setting land exchange policy but park management's ability to control access and development within the recreation area, to set carrying capacity, to protect sensitive natural and cultural resources and to control and monitor commercial activities on the lake.

Due to widespread public opposition, the state has generally agreed not to pursue the marketing of state lands within Utah park units and has been working with the Bureau of Land Management to exchange state inholdings for lands outside park boundaries.

CONCESSIONS

In accordance with the park's general management plan and development concept plans, commercial development has increased dramatically over the last few years in response to growing public use of the area.

Present development plans for existing marinas within the recreation area would double present visitor service facilities. The Navajo Nation, which has development rights along the southern shore of Lake Powell, opened the San Juan Marina in 1987 under a concession contract with the National Park Service. The site at Paiute Farms was intended to be only temporary because of the rapid siltation of the area. The combination of siltation, low lake levels and a devastating summer flash flood closed the marina in August 1989. Site planning for a permanent marina site on the San Juan Arm was initiated in 1989 at Copper Canyon, located approximately three miles downstream from Paiute Farms. The Copper Canyon site was determined to be infeasible due to local topography, siltation and low lake water levels. No additional planning for a marina on the San Juan Arm at Lake Powell has been initiated.

An additional site at Antelope Point already has been designated for a marina complex development. However, difficulties between the Navajo Nation and its selected subconcessioner/developer, SEVA Resorts, Inc., have delayed construction. A contract that had been agreed to by both the Navajo Nation and the National Park Service and that had completed the mandatory 60-day Congressional review period, was withdrawn at the request of the Navajo Nation because of its dissatisfaction with SEVA. Because SEVA already has a long-term lease on the land, a change in subconcessioners is difficult. Additionally, the National Park Service must approve the final selection of a subconcessioner. Any proposed company must be reviewed to assure its financial capability to complete the development and provide operating capital and its managerial competence to operate a completed development to NPS standards.

With the tribal elections of fall 1990, and the election of Peterson Zah as the new tribal chairman, the tribe has shown renewed interest in the project. The tribe has initiated contact with the National Park Service and agreed to a task directive that provides guidance for the various agencies through the contracting process. Included in the task directive is an update of the development concept plan because of low water conditions of Lake Powell and possible physical constraints at the site.

FEE COLLECTION

Seeking additional funding to support the development and maintenance of visitor facilities, and in lieu of potential entrance fees, Glen Canyon has suggested that user and/or special recreation fees be collected. The park presently collects only camping fees.

The proposal would include construction of seven collection stations. Use fees would be charged on exit from the recreation area based on the length of stay. This one fee would cover use of facilities such as parking lots, backcountry campsites, etc.

DANGLING ROPE MARINA FACILITY CORRECTIONS

Since the facilities at Dangling Rope were completed, a number of deficiencies and problems have been identified. The post-construction evaluation identified approximately \$470,000 (not including design or construction supervision costs) in corrections necessary to make the facility operate as initially planned. Work includes repairing the marina fire protection system, modifying the fire pump control system, replacing PVC water and sewer lines with cast-iron or aluminum, modifying or repairing problems with winches and cable anchoring system, correcting grading, drainage and landscaping problems, and other minor repairs. This work is beyond the scope of what the park maintenance staff can repair, and the work is essential for fire protection systems to function properly and for the marina anchoring system to function with full efficiency.

LONE ROCK DEVELOPMENT

The Lone Rock Beach area, a half-mile north of the Arizona-Utah border, is of increasing concern for a variety of reasons. It is highly popular because it offers direct access via a 2.2-mile unimproved road from U.S. Highway 89 to a wide expanse of beach where visitors may camp adjacent to the water and leave their boats anchored nearby. It includes about 600 acres where off-road vehicle use is permitted. Toilets and trash receptacles are provided, but no other facilities are available.

It constitutes a problem area because of limited NPS presence, the frequency of law enforcement calls during the peak visitor season and poor water quality as a result of concentrated, high numbers of visitors and the absence of a recreation vehicle sanitary dump station.

Kane County (Utah) Commissioners for some time have been pressuring the park as well as the state congressional delegation for development of this key area. A development concept plan for the area was completed and approved in 1981. Its 5-year construction costs were estimated at \$7,736,000 to accommodate a paved road, sanitary facilities, utility systems, visitor contact station and launch ramp. Although this is a somewhat limited development proposal, the area's popularity is based in large part on the unstructured use allowed there. A 10-238 package representing the park's number one

priority was submitted to the Regional Office, and has been assigned a regional priority of 21 as of April 1991.

In 1991, Kane County notified the park that they had secured funding to upgrade and pave the Lone Rock Access Road. They claimed the road as a county road under revised statute 2477. Further research has not positively verified the validity of the county's claim. The park could upgrade the road in 1995 with funding from the Federal Lands Highways Program. The National Park Service is investigating options to authorize the county to complete some improvements to the road until federal funding is available in 1995.

MAINTENANCE OPERATION SHORTFALL

The Construction Set-Aside program has dramatically increased facilities that must be maintained by the National Park Service. Utilities provided by the park have experienced dramatic increases in use by ARA and park visitors. Federal and state regulations related to fuel storage, hazardous waste management, solid waste disposal, water and wastewater system monitoring, domestic water quality, etc., have multiplied maintenance responsibilities. Costs for services or materials that must be obtained for the park's operation has risen steeply (items such as diesel for electrical power generation, landfill fees, utility bills, etc.). However, funding for maintenance and staffing have not kept pace with the demand for operational support services.

These contradictory trends are approaching the breaking point. Utility and other maintenance operations are so compromised that all problems of a health and environmental protection nature are prominent issues that do not receive sufficient attention. Funding is not adequate to address rudimentary regulatory requirements. Only emergencies, enforced requirements, and facility and utility failures receive attention. Preventive maintenance is virtually non-existent. Basic services like rest room cleaning and litter pick-up are at a marginal level of acceptability.

WATER SAFETY

The majority of use at Glen Canyon is related to water recreational activities. With over three million visits, the concern for safe practices relating to these activities is great. Nearly all accidents and most deaths are directly related to water activities. In an estimated 90 percent of these accidents, injuries and deaths, alcohol use is also a contributing factor.

The National Park Service is working with other organizations such as the Lake Powell Yacht Club and the U.S. Coast Guard Auxiliary and agencies such as the Federal Communications Commission to develop safety brochures and messages and to provide general information on water safety to the visiting public at Glen Canyon. Efforts with local radio stations and with the 24-hour NOAA Weather Radio service covering Lake Powell are under way. But with continued increases in use, this issue will continue to be an important area for park management efforts.

TRASH TRACKER SHORELINE CLEANUP PROGRAM

In 1990 a cooperative program was initiated between the National Park Service, ARA Leisure Services, Botel Houseboats, Navajo Generating Station (NGS) and Chevron Oil Company entitled "Trash Tracker." This program involves a houseboat donated by Botel Houseboats; a pilot provided by ARA Leisure Services, garbage bags provided by the Navajo Generating Station, fuel provided by Chevron Oil Company and park volunteers provided by the National Park Service. Volunteers are scheduled to go out on the houseboat for five day periods and spend 32 hours cleaning park beaches of visitor generated trash. This program is extremely successful and is "booked" a year in advance.

Working with the Navajo Generating Station, the park has developed a "Boat-it-in, Bag-it-out" program to distribute trash bags at marinas and launch ramps. These bags provide environmental and safety information as well. Again in cooperation with the NGS, visitors are asked to participate in an "Adopt-A-Canyon" program, whereby visitors volunteer to clean up a specific area during their visit to the park. Upon completion, they are given a specially designed, high-quality poster developed for that year.

Despite these volunteer efforts, however, deterioration of the shoreline environment through use is continuing. Of particular concern is the human waste problem associated with use of sandy beaches for camping. Fluctuating water level on the lake alternately covers and exposes some areas causing water quality in these areas to suffer as well. A regular clean-up and maintenance program must be considered to deal effectively with the growing problem to protect park resources and provide visitor safety.

OFF-ROAD USE

A combination of circumstances makes off-road vehicle (ORV) use a major issue at Glen Canyon. First, vehicular access to the lakeshore is limited essentially to five of the existing marina areas and about 20 primitive but accessible lakeshore sites. The public desire for such access is a constant inducement to illegal approach by ORV. Second, mineral prospecting in the region prior to the park's establishment left many miles of exploration routes and scars, the presence of which is seen by some ORV advocates as justification for their continued use. Third, notwithstanding an extensive staking program that designates off-limit areas, some ORV users choose to ignore these warnings in the knowledge that their chances are marginal of being apprehended by the minimal number of park staff.

Glen Canyon has designated approximately 600 acres at Lone Rock for ORV use, and restricts to designated roads all other mechanized travel. Operators and vehicles are required to be street licensed.

In 1988 an intense effort was made to try to restrict the illegal off-road use by implanting stakes marking closed roads. This caused a particular outcry among Page area ORV enthusiasts who have used many of these closed areas for many years because of the

NPS's lack of ability to enforce closures delineated in the 1979 *General Management Plan for Glen Canyon NRA*.

The continuing popularity of ORV use and the increasing numbers of such vehicles--2-wheel, 3-wheel and 4-wheel--is certain to translate into further abuses of park lands and recurring public demands for more concessions by the park.

A newer type of off-road vehicle--mountain bicycles--appears to be gaining in popularity. Current regulations restrict such vehicles to designated roadways, however, off-road use is occurring.

HALLS CROSSING AIRPORT

The existing airstrip at Halls Crossing within Glen Canyon NRA is dirt-surfaced, poorly oriented for general aviation use and has unsafe approaches over Lake Powell. The amended development concept plan for Halls Crossing (approved 1985) calls for obliteration of the existing airstrip and construction of an airstrip at a new site. However, the DCP recognizes that NPS funding for an airstrip is not available. San Juan County has proposed sponsoring the airport construction and subsequent operation, using Federal Aviation Administration (FAA) grant monies, state of Utah funds and county general revenues as funding sources consistent with the authority of 16 U.S.C. Section 7(b).

The FAA provided San Juan County a grant to conduct a site screening and selection study and environmental analysis and to prepare a master plan. In January 1987, the draft Airport Master Plan and draft environmental assessment were provided to the NPS and FAA for review. The environmental assessment was found to be seriously incomplete and inadequate for acceptance. In December 1987, the FAA announced it would begin preparation of a full environmental impact statement.

In 1990, the FAA completed the environmental impact statement, which identified a suitable airport site outside the recreation area on land administered by the Bureau of Land Management. San Juan County acquired the land from BLM and has received funding in the amount of \$2.4 million for construction in 1991. Airport construction commenced in March 1991 and is scheduled for completion as early as January 1992. At that time the park will close the existing airstrip at Halls Crossing.

PROPOSED CITY OF PAGE AIRPORT

In 1991 the city of Page notified the park that they were examining sites for the future location of city airport, which includes an 8,700 foot runway. Based on preliminary analysis, the city of Page identified three sites for additional study. One of these sites is located within Glen Canyon National Recreation Area. The city was notified that the park was not interested in locating the airport in the park as suitable sites exist outside the park.

The city of Page is continuing with their site evaluation including the site within the park. Correspondence has been sent that outlines the planning history including park zoning and the need for compliance with the Airports in Parks Act and Section 4(f) of the Department of Transportation Act of 1966.

TAR SANDS

Glen Canyon is in a region replete with energy-rich hydrocarbon deposits known as tar sands. Such deposits are found between the Dirty Devil and the Colorado rivers (Tar Sands Triangle), above White Canyon and in the Circle Cliffs north of Glen Canyon's Escalante subdistrict and adjacent to Capitol Reef National Park.

Seven separate development proposals have been filed with the federal government for permission to extract tar sands from the Tar Sands Triangle and Circle Cliffs area. All of the proposals would result in intensive industrial operations adjacent to or within the recreation area. They would affect the air, water, biotic habitat and recreational quality of NRA lands adjoining the operations. None of the proposals has been approved. Nevertheless, whether through approval of the present proposals or through future hydrocarbon leasing, tar sands development will remain a major issue in management of the recreation area for many years.

LEASING OF FEDERAL MINERAL RIGHTS

In accordance with the park's general management plan, 370,000 acres are available for the leasing of federal mineral rights. There are 37 lease offers pending for approximately 160,000 acres. No leases have been offered since the establishment of the recreation area.

A minerals management plan for the park was completed in 1980 and procedural regulations for resource protection promulgated in 1981 as required by the U.S. District Court in 1973 litigation judgment.

The effects of leasing within the 370,000 acres available for such action are being evaluated on a district basis in a parkwide environmental assessment. The assessment is being closely coordinated with the Bureau of Land Management and the NPS Mining and Minerals Office. A draft of this environmental assessment has been completed and is undergoing in-house review.

LOW-LEVEL OVERFLIGHTS

The number of low-level military flights within the recreation area is a growing concern because of the impact on the visitor experience and its threat to air safety.

No detailed records of the number and location of low-level military aircraft flights have been gathered, but it is well known that these aircraft use the canyons of the recreation area for maneuvers, whether authorized or not.

Local pilots have reported "near misses" with high-speed aircraft crossing their flight paths. There is concern, too, for possible resource damage, including rock falls and frightening of wildlife. Visitors complain about the tremendous noise accompanying the aircraft, which shatters the quiet and oftentimes causes fright. If these flights continue or become more frequent, this could become a larger issue.

ADJACENT LAND ISSUES

Activities on Bureau of Land Management and state of Utah lands adjacent to Glen Canyon NRA could have both short- and long-range effects on park resources. The majority of these lands are available for oil and gas leasing, and most are under lease. Additionally, activities, such as off-road use, which are permitted on these lands and not on NPS lands, create confusion for public land users.

Andalex Resources of Kentucky has purchased coal leases previously held by Arizona Public Service Company in Smoky Hollow approximately 6 miles north of the recreation area boundary in the vicinity of Warm Creek Bay. Andalex is proposing an underground mining operation that will produce two million tons of coal per year. Major issues associated with their proposal are the proximity to wilderness study areas and access through the recreation area. Coal would be trucked to railheads either at Flagstaff, Arizona, or Moapa, Nevada, at a rate of a coal truck leaving the mine every fifteen minutes. Andalex has funded the preparation of an Environmental Impact Statement through the Bureau of Land Management, which is scheduled to be completed in 1993.

Existing oil and gas leases are being evaluated for conversion to combined hydrocarbon leases for known tar sand geological structures in the Circle Cliffs and Tar Sands Triangle. Coal resources are under lease on Nipple Bench, the Kaiparowits Plateau and the Henry Mountains. The Department of Energy encouraged a feasibility study to evaluate a pumped-back storage project near Warm Creek Bay.

Although many of these projects are presently not viable economically, a change in the Nation's energy strategy or increased prices for energy production could change this situation at any time.

The state of Utah Division of Lands and Forestry are preparing a general management plan for lands immediately adjacent to the recreation area in the vicinity of Bullfrog. The plan is seeking to identify the development potential of state lands and what the impact of development would be. The scoping of the issues is scheduled to begin in 1991 with the completion of the plan scheduled for 1992.

Air quality is a continuing concern throughout the recreation area. Power generation plants throughout the region continue to impact the visibility. The closest and most visible source is the Navajo Generating Station near Page, Arizona, along the southern boundary

of the recreation area. The Environmental Protection Agency has recommended the installation of scrubbers to reduce the emission of sulfur dioxide from the Navajo Generating Station due to its contribution to reduced winter visibility in Grand Canyon National Park.

In 1991 the Bureau of Land Management established a policy for landfills on public lands based on recent court decisions that found the federal government responsible for contamination of soils and underground water supplies that were related to local landfills. This policy requires that landfills be fenced and covered with dirt daily. Each of the small communities surrounding the recreation area are using dumps on public lands through leases with the Bureau of Land Management. This policy will have a significant impact on these communities and may result in illegal dumping within and adjacent to the recreation area.

For external threats, the NPS will continue to work for prevention of a derogation of park values through ongoing interagency communications and closer coordination with other agencies at early stages of planning.

PLANNING

As Glen Canyon National Recreation Area is a relatively new area, there are a number of studies and plans to be completed to provide background information on which to make development and management decisions. The 1991 Outline of Planning Requirements lists 21 plans to be completed. The top priorities follow.

In 1991 the park took action to limit the maintenance of private boats within the recreation area. This action was necessitated by the handling of potentially hazardous materials and their disposal. There is a need to identify the appropriate public and commercial boat repair activities that can be conducted in a manner that will provide for the preservation of park resources. These activities are those that potentially produce pollutants or hazardous wastes as defined by 40 CFR 262. These activities include mechanical repair of engines and drive units, changing engine fluids, hull cleaning and repair, painting and other related activities.

There is a need to evaluate recreational use and develop a plan that provides for these uses in a manner that minimizes visitor conflicts. This includes appropriate locations for the use of jet skis, boats, swimming, fishing, etc. There is also a need to evaluate human sanitation for boaters and campers along the Lake Powell shoreline.

Glen Canyon currently charges no entrance or user fees, however, they have submitted a feasibility study on establishing a daily recreation use fee program at the park to the Congressional Appropriations Committee (November 1990). Fee collection is feasible only if funds are made available to get started. An expanded fee collection program would allow the park to fund some of its critical resource protection and interpretation needs through the collection of recreation fees. Should fee collection in expanded form occur at Glen Canyon, seven entrance stations and housing for staff would have to be

constructed. Initial site planning is needed to locate entrance/fee collection stations at these entry points. In addition, staff increases will be needed to operate the stations.

The park does not have a DCP to guide long-range planning for the recently constructed marina at Dangling Rope. Visitation to the marina has grown tremendously since its opening and the needs for expanded visitor services and support facilities should be studied. The Rainbow Bridge GMP/DCP/IP/RMP, which is under way, will also have a major impact on Dangling Rope as it serves as a support area for the National Monument. The Dangling Rope planning should immediately follow the completion of the Rainbow Bridge Plan and identify the facilities needed at Dangling Rope to implement the Rainbow Bridge GMP.

Recent tort claim experience throughout the National Park System has established park's liability associated with safety hazards in visitor use areas that have not been identified and corrected. A study needs to be conducted of the safety hazards associated with developed area facilities lakewide as the first step in addressing this problem. Proposed phasing for this study is: Wahweap, Dangling Rope, Bullfrog, Halls Crossing, Lees Ferry and Hite. Additionally, water safety is of continuing concern and should be addressed as a part of this study.

Glen Canyon NRA covers a large geographical area with developed areas spread far apart. Telephone communication between the developed areas involves in-state and out-of-state long distance calls. The more isolated areas such as Dangling Rope and Hite have limited telephone service. A study is required to determine the most economical and efficient means of voice and data communications. This issue is crucial to effective management of this large area.

A comprehensive plan is needed to identify strategies of caring for cultural resource collections that have been removed from Glen Canyon. Of particular concern are the collections that were collected during the extensive archeological salvage projects prior to inundation and that are stored off-site. Acquisition of these collections for scientific and interpretive purposes, as well as establishing the capability to maintain a minimal natural history collection in the park, are issues that would be addressed in a collections management and storage plan.

The additions to visitor facilities shown in the park's DCPs will make current fire fighting plans and facilities totally inadequate. A structural fire plan is required to analyze our structural fire needs and strategies at each of the developed areas. The plan should address needed staffing, equipment, and facilities as well as overall strategies for providing structural fire protection. In addition, interpretation at sites where there are accessible ruins or petroglyphs must be done with consideration for visitor safety and protection and preservation of the resource.

The existing interpretive prospectus for the recreation area is out-of-date and nearly obsolete. In the past 3 years, major new planning efforts and DCP updates and revisions have radically changed area visitor service facilities and informational needs as well as use patterns. A new, comprehensive prospectus is needed badly.

Interpretive exhibits, and wayside exhibits in particular, are scarce at Glen Canyon. Many major visitor attractions, both on and off the water, do not have either interpretive exhibits or personal interpretation to provide visitor information. The wayside exhibits that do exist were produced over a number of years and are dated. Upon completion of a revised interpretive prospectus, planning should begin to develop a parkwide strategy for the use of wayside exhibits to convey interpretive themes.

The park has an existing draft plan to guide the management of the section of the Colorado River between Glen Canyon Dam and Lees Ferry. However, the recent growth of concessioner river trips on that portion of the river has created the need for additional planning. Specifically, there is a need to define carrying capacity and appropriate visitation limits to protect park resources.

NATURAL RESOURCES

Water Resources

Lake and river waters are prime park resources currently experiencing intense use in some areas as well as substantial threats from adjacent development. Baseline quality data is needed to design effective monitoring and to establish a standard for comparison. Flood-hazard maps need to be prepared as well as the identification of the lake flood level to assist in the design of facilities.

Springs and seeps are important habitat factors subject to contamination and overuse or elimination where aquifer source interference occurs. Baseline data on instream flows are needed, as well as studies of water-dependent resources to ensure that sufficient water is maintained. One of the highest priority water resource management requirements is the inventory and monitoring of free-flowing water in the NRA to provide documentation of federally reserved, water-right quantities. Also required is a program to identify "critical reaches" where significant natural and recreational resources are most dependent on free-flowing water.

The park needs to identify and implement long-range strategies to protect water resources, including watersheds and riparian zones, and to provide guidance in the resolution of day-to-day conflicts. Long-term monitoring of water quality is needed on the lake and rivers to ensure compliance with health standards and to monitor effects of recreational use.

Fisheries

Studies related to fisheries management are needed to determine productivity relationships in the lake and to understand population trends in native fish and game fish. Intermittent sampling of fish for trace element content will continue. The National Park Service needs to become actively involved in fisheries management on a cooperative basis with the states to ensure that long-term park objectives are attained. Future issues of significance may include outside proposals to manipulate the lake environment to enhance sport fishing or to introduce additional exotic species. Research will be needed

to understand fish habitat changes associated with developing shoreline communities and potential changes in reservoir operations. A priority management objective concerning fish is to develop a cooperative fisheries management plan with the U.S. Fish and Wildlife Service and the states of Arizona and Utah to develop long-term objectives and strategies for the area.

Wildlife

There is a major deficit of information on native nongame wildlife. Baseline surveys and monitoring are needed for all faunal groups. In the remote, little-studied areas of the NRA, it is somewhat likely that new information on rare animals or species of particular public interest would be found.

Specific wildlife management issues include nuisance coyotes in developed areas; foraging habitat and prey base of wintering bald eagles, understanding mammalian populations and their relationships, and bighorn sheep management. The highest priority wildlife management objective of the NPS for Glen Canyon is to develop an inventory and monitoring program for the park's fauna, followed by development of a cooperative wildlife management plan with the FWS and the states of Utah and Arizona.

Research

Baseline research and applied research is needed throughout the area, and efforts will continue to build a research program focused on key management issues. The resource management plan update in 1989 will incorporate natural and cultural resource research needs, allowing them to be set in priority into an overall research plan. Among the expected topics of importance are: research on aquatic habitats, unique and relict plant communities, social science information on visitor use and recreation, and recreational values.

A significant paleontological resource has been discovered in the park within the last several years, and research is needed to increase understanding of the extent and significance of these remains.

A water-rights study also needs to be done for the Colorado River and Lake Powell to determine quantities of water available for Glen Canyon National Recreation Area needs.

Threatened and Endangered Species

A management plan for threatened and endangered species is needed to inventory those found within the boundaries of Glen Canyon NRA and to provide for their protection, maintenance and enhancement.

CULTURAL RESOURCES

Widespread deterioration of cultural resources within the park has been documented for over 10 years; the primary cause has been heavy visitor impacts. Countless significant structural sites were exposed to unsupervised and extremely heavy visitation when Lake

Powell reached full pool in the late 1970s. Since then, a largely pristine site population has all but disappeared from many areas around the perimeter of the lake, estimated to contain several thousands of sites.

In 1984 a contract was issued resulting in the stabilization of a number of significant sites. However, this contract has lapsed since, and no long-term provisions for site maintenance and stabilization of additional sites have been made. Using minimal funding, the park has initiated a limited monitoring program for some areas of the lake to provide baseline information and documentation of the problem. A widespread monitoring program is needed in the park to identify patterns and rates of deterioration. Cyclic maintenance is needed on a broad scale. Large middens that have been opened by vandals need to be tested and backfilled. Methods of monitoring the loss of artifacts through visitor collection need to be developed and implemented.

Three stabilized sites--Three Roof Ruin, Defiance House and Widow's Ledge--primarily designated for interpretive use are estimated to each receive upwards of 35,000 visitors, unsupervised, annually. However, no funding currently is allocated for regular housekeeping maintenance of these structures, and two of the three are in need of major work on access routes. All three sites have been endangered by undermining of site foundations, and visitor safety is a serious concern. An active, on-site interpretive program is needed together with regular cyclic maintenance to maintain site protection and enrich the visitor experience.

All strategies and plans developed for the recreation area depend on the Archeological Resources Protection Act to provide the authority to protect resources through public education and adequate punishment of offenders.

Several sites and areas are in need of specific plans to identify strategies for protection, scientific and interpretive use and long-term management. These include the Kaiparowits Plateau, approximately 30 stabilized archeological sites, Lees Ferry and Lonely Dell Ranch National Register Districts and selected areas in the Orange Cliffs.

Lack of adequate survey and mitigation prior to preparation and implementation of development plans has led to a major compliance workload in the park. Intensive surveys and appropriate mitigation are needed for the Bullfrog, Halls Crossing, Hite, Hans Flat, Lees Ferry and Accessible Shoreline DCPs. In addition, testing and evaluation work is needed for many sites along the Flint Trail at Hans Flat.

No structure has yet been designated for the storage of museum objects in the park. Current collections totaling several hundred objects are housed in scattered locations throughout the park with poor controls on access and environmental conditions. Many thousands of additional objects, primarily archeological materials removed from lands currently inside park boundaries, are contained in distant institutions and are unavailable for all practical purposes to park resource and interpretive staffs for management and interpretation purposes. A structure is needed to house current collections, preferably one large enough to allow retrieval of at least a portion of the off-site materials. Provisions for storage of museum objects have been made in the design for the new park headquarters building, scheduled for completion in early 1992.

MANAGEMENT OBJECTIVES

PARKWIDE MANAGEMENT OBJECTIVES

The 1979 *General Management Plan* for the park established planning objectives and zoned the land and water within the recreation area to coincide with certain management objectives. These objectives, with only minor additions, still provide the management direction of the park.

Level I

To manage the recreation area for maximum recreational enjoyment by the American public, while preserving the scenic, scientific and historic features within the park boundaries.

To maximize the recreational experience and the number of opportunities for enjoying the recreation area.

To provide the richest possible interpretive experience for visitors.

To manage the area within its legislatively imposed constraints.

To manage as *de facto* wilderness the 588,855 acres (47 percent of the land surface) recommended for wilderness designation until Congress takes specific action for such within Glen Canyon NRA.

Level II

To accommodate many varieties of appropriate recreational use, but to favor water-oriented recreation.

To create varying kinds and uneven intensities of use along the length of the reservoir and throughout other portions of the recreation area.

To establish recreational use patterns that insure all visitors have equal opportunities to enjoy the area and use the available recreation facilities.

To provide through concessionaires those commercial facilities and services within the recreation area that are necessary for the use and enjoyment of the visitor and appropriate to the area consistent--to the highest degree possible--with the area's preservation and conservation.

To interpret historical and archeological resources and the culture of aboriginal societies while centering interpretive themes around outdoor recreation.

To protect, to the degree possible, cultural resource properties from natural and human-caused deterioration.

To provide protection for and allow appropriate use of natural and cultural museum objects.

To interpret for the public the natural resource values of the recreation area's lands and waters, providing increased opportunities for understanding and appreciation of the Southwestern environment and its flora and fauna and of man's relationship to his environment.

To promote understanding of the park's scientific values and to encourage its use as an arena of research for the benefit of the public.

To promote a sense of exploration and fortunate discovery while visiting and enjoying the recreation area.

To make interpretive opportunities available to all visitors to enhance their recreational experience and to perpetuate the area's environment by generating understanding, interest, appreciation and respect for the recreational, natural, cultural and historical resources, and to encourage an environmental ethic.

To manage mineral and grazing use in accordance with the preservation of ". . . scenic, scientific, and historic features contributing to public enjoyment of the area."

To encourage the maintenance of high water quality in all bodies and sources of water and to perpetuate the natural flow of water.

To maximize the efficiency and effectiveness of the management of the recreation area and adjacent lands.

To cooperate with the Bureau of Reclamation in their management of the reservoir.

To cooperate with the Navajo Tribe in managing and developing the southern shoreline of Lake Powell for recreation use, with particular emphasis on the development of marinas at Antelope Point and a site chosen for replacement of the San Juan Marina.

To instill an appreciation for Glen Canyon's climatic and physical hazards through the area's interpretive and visitor services programs to reduce the need for excessive safety barriers, special precautionary regulations and law enforcement actions.

Level III

To inventory and monitor the natural and cultural resources of the area to provide factual data on which to base management and development responses.

To determine the significance of the park's cultural resources and to maintain the integrity of these resources.

To manage the park's ecosystem in ways that interfere as little as possible with natural processes, consistent with permitted recreational and commercial uses.

To work cooperatively with the Bureau of Land Management and the states of Arizona and Utah to exchange state-owned lands within the recreation area for other federal holdings outside in order to consolidate ownership of lands within the recreation area's boundary and to reduce potential conflicts.

To coordinate planning and management of grazing and mining with the Bureau of Land Management to ensure, to the greatest extent possible, that these activities do not conflict with recreation use and resource conservation.

To coordinate planning and management of the aquatic resources of Lake Powell and the Colorado River with the states of Arizona and Utah, the Bureau of Reclamation, the Corps of Engineers and the U.S. Coast Guard.

To monitor environmental changes in the quality of the atmosphere and aquatic regime by working with federal monitoring agencies and to monitor changes in the terrestrial environment resulting from surface disturbance activities within and external to the area.

Level IV

To facilitate trail biking on areas capable of sustaining such activity and where conflicts with other uses do not occur.

To use local public communications media in providing information about the recreation area to residents of and visitors to the Colorado Plateau.

To facilitate and encourage air travel over the canyon country.

AREA SPECIFIC MANAGEMENT OBJECTIVES

Bullfrog/Halls Crossing/Hite

Level I. To Use as a major center for both water- and land-oriented recreation, offering opportunities for a wide range of experience.

Dangling Rope

Level I. To provide a range of goods and services to the boating public and so enhance the enjoyment, appreciation and safety of their visit to Glen Canyon and Rainbow Bridge.

Escalante

Level I. To maintain a semi-primitive experience on the Escalante arm of Lake Powell and primitive recreational experiences on land areas.

Level II. To minimize air traffic over the Escalante River drainage.

To regulate use of the Escalante Canyons to minimize adverse environmental impacts.

To provide for backcountry hiking and camping.

Lees Ferry

Level I. To give primary emphasis to historical interpretation and access to recreational pursuits on the Colorado River.

Level II. To maintain and enhance its function as a river runner's put-in and take-out point.

To maintain as a trailhead for day hikers and trail terminus for overnight hikers coming down through the Paria Canyon.

To provide access for fisherman to the Colorado River above Lees Ferry.

Orange Cliffs

Level I. To maintain as a critical backdrop for Canyonlands National Park and as a major vantage point for spectacular views into the park.

To maintain a primitive, undeveloped atmosphere.

Level II. To serve as a starting point for backcountry trips into the Maze District of Canyonlands National Park.

To maintain the Hans Flat to Flint Trail switchbacks road so it normally is usable by 2-wheel drive vehicles.

San Juan

Level I. To maintain and provide a wild-river experience; a rural/natural boating opportunity on the San Juan arm of the lake; and the present degree of isolation.

Level II. To provide necessary visitor services on the San Juan in cooperation with the Navajo Nation.

Wahweap

Level I. In the Wahweap/Lone Rock and Warm Creek areas, to provide for intensive water-recreation use.

At Wahweap, to provide indoor activities for those visitors not using the lake.

An Act to establish the Glen Canyon National Recreation Area in the States of Arizona and Utah. (86 Stat. 1311)

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That in order to provide for public outdoor recreation use and enjoyment of Lake Powell and lands adjacent thereto in the States of Arizona and Utah and to preserve scenic, scientific, and historic features contributing to public enjoyment of the area, there is established the Glen Canyon National Recreation Area (hereafter referred to as the "recreation area") to comprise the area generally depicted on the drawing entitled "Boundary Map Glen Canyon National Recreation Area," numbered GLC-91,006 and dated August 1972, which is on file and available for public inspection in the office of the National Park Service, Department of the Interior. The Secretary of the Interior (hereafter referred to as the "Secretary") may revise the boundaries of the recreation area from time to time by publication in the Federal Register of a revised drawing or other boundary description, but the total acreage of the national recreation area may not exceed one million two hundred and thirty-six thousand eight hundred and eighty acres.

SEC. 2. (a) Within the boundaries of the recreation area, the Secretary may acquire lands and interests in lands by donation, purchase, or exchange. Any lands owned by the States of Utah or Arizona, or any State, political subdivisions thereof, may be acquired only by donation or exchange. No lands held in trust for any Indian tribe may be acquired except with the concurrence of the tribal council.

(b) Nothing in this Act shall be construed to affect the mineral rights reserved to the Navajo Indian Tribe under section 2 of the Act of September 2, 1958 (72 Stat. 1686), or the rights reserved to the Navajo Indian Tribal Council in said section 2 with respect to the use of the lands there described under the heading "PARCEL B".

SEC. 3. (a) The lands within the recreation area, subject to valid existing rights, are withdrawn from location, entry, and patent under the United States mining laws. Under such regulations as he deems appropriate, the Secretary shall permit the removal of the nonleasable minerals from lands or interests in lands within the national recreation area in the manner prescribed by section 10 of the Act of August 4, 1939, as amended (53 Stat. 1196; 43 U.S.C. 387 et seq.), and he shall permit the removal of leasable minerals from lands or interests in lands within the recreation area in accordance with the Mineral Leasing Act of February 25, 1920, as amended

(30 U.S.C. 181 et seq.), or the Acquired Lands Mineral Leasing Act of August 7, 1947 (30 U.S.C. 351 et seq.). if he finds that such disposition would not have significant adverse effects on the Glen Canyon project or on the administration of the national recreation area pursuant to this Act.

(b) All receipts derived from permits and leases issued on lands in the recreation area under the Mineral Leasing Act of February 25, 1920, as amended, or the Act of August 7, 1947, shall be disposed of as provided in the applicable Act; and receipts from the disposition on non-leasable minerals within the recreation area shall be disposed of in the same manner as moneys received from the sale of public lands.

SEC. 4. The Secretary shall administer, protect, and develop the recreation area in accordance with the provisions of the Act of August 25, 1916 (39 Stat. 535; 16 U.S.C. 1 et seq.), as amended and supplemented, and with any other statutory authority available to him for the conservation and management of natural resources to the extent he finds such authority will further the purpose of this Act: *Provided, however,* That nothing in this Act shall affect or interfere with the authority of the Secretary granted by Public Law 485. Eighty-fourth Congress, second session, to operate Glen Canyon Dam and reservoir in accordance with the purposes of the Colorado River Storage Project Act for river regulation, irrigation, flood control, and generation of hydroelectric power.

SEC. 5. The Secretary shall permit hunting, fishing, and trapping on lands and waters under his jurisdiction within the boundaries of the recreation area in accordance with applicable laws of the United States and the States of Utah and Arizona, except that the Secretary may designate zones where, and establish periods when, no hunting, fishing, or trapping shall be permitted for reasons of public safety, administration, or public use and enjoyment. Except in emergencies, any regulation of the Secretary pursuant to this section shall be put into effect only after consultation with the appropriate State fish and game department.

SEC. 6. The administration of mineral and grazing leases within the recreation area shall be by the Bureau of Land Management. The same policies followed by the Bureau of Land Management in issuing and administering mineral and grazing leases on other lands under its jurisdiction shall be followed in regard to the lands within the boundaries of the recreation area, subject to the provisions of sections 3(a) and 4 of this Act.

SEC. 7. The Secretary shall grant easements and rights-of-way on a nondiscriminatory basis upon, over, under, across, or along any component of the recreation area unless he finds that the route of such easements and rights-

of way would have significant adverse effects on the administration of the recreation area.

Sec. 8. (a) The Secretary together with the Highway Department of the State of Utah, shall conduct a study of proposed road alignments within and adjacent to the recreation area. Such study shall locate the specific route of a scenic, low-speed road, hereby authorized, from Glen Canyon City to Bullfrog Basin, crossing the Escalante River south of the point where the river has entered Lake Powell when the lake is at the three thousand seven hundred-foot level. In determining the route for this road, special care shall be taken to minimize any adverse environmental impact and said road is not required to meet ordinary secondary road standards as to grade, alignment, and curvature. Turnouts, overlooks, and scenic vistas may be included in the road plan. In no event shall said route cross the Escalante River north of Stephens Arch.

(b) The study shall include a reasonable timetable for the engineering, planning, and construction of the road authorized in section 8(a) and the Secretary of the Interior shall adhere to said timetable in every way feasible to him.

(c) The Secretary is authorized to construct and maintain markers and other interpretive devices consistent with highway safety standards.

(d) The study specified in section 8(a) hereof shall designate what additional roads are appropriate and necessary for full utilization of the area for the purposes of this Act and to connect with all roads of ingress to, and egress from the recreation area.

(e) The findings and conclusions of the Secretary and the Highway Department of the State of Utah, specified in section 8(a), shall be submitted to Congress within two years of the date of enactment of this Act, and shall include recommendations for any further legislation necessary to implement the findings and conclusions. It shall specify the funds necessary for appropriation in order to meet the timetable fixed in section 8(b).

Sec. 9. Within two years from the date of enactment of this Act, the Secretary shall report to the President, in accordance with subsections 3(c) and 3(d) of the Wilderness Act (78 Stat. 890; 16 U.S.C. 1132 (c) and (d)), his recommendations as to the suitability or unsuitability of any area within the recreation area for preservation as wilderness, and any designation of any such area as wilderness shall be in accordance with said Wilderness Act.

Sec. 10. There are hereby authorized to be appropriated such sums as may be necessary to carry out the purposes of this Act, not to exceed, however, \$400,000 for the acquisition of lands and interests in lands and not to exceed \$37,325,400 for development. The sums authorized in

this section shall be available for acquisition and development undertaken subsequent to the approval of this Act.

Approved October 27, 1972.

Legislative History

House Report No. 92-1446 accompanying H.R. 15716 (Committee on Interior and Insular Affairs).

Senate Report No. 92-156 (Committee on Interior and Insular Affairs).

Congressional Record:

Vol. 117 (1971): June 21, considered and passed Senate.

Vol. 118 (1972):

Oct. 13, considered and passed House, amended, in lieu of H.R. 15716.

Oct. 14, Senate concurred in House amendment, with amendments; House concurred in Senate amendment.

Weekly Compilation of Presidential Documents: Vol. 8, No. 44 (1972): Oct. 28, Presidential statement.

Sept. 2 NAVAJO INDIANS—LAND EXCHANGE P.L. 85-868

NAVAJO INDIANS—LAND EXCHANGE

For Legislative History of Act, see p. 5085

PUBLIC LAW 85-868; 72 STAT. 1686

[S. 3754]

An Act to provide for the exchange of lands between the United States and the Navajo Tribe, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That:

(a) The Secretary of the Interior shall, in consideration of and as just compensation for the transfer made by section 2 of this Act as well as for the use and occupancy of the lands therein described under terms of the right-of-way granted March 22, 1957, by the Secretary pursuant to the Act of February 5, 1948 (62 Stat. 17),¹ transfer to the Navajo Tribe so much of the block of public lands (exclusive of the minerals therein, but inclusive of all range improvements constructed thereon) described in subsection (c) of this section, as shall constitute a reasonably compact area equal in acreage to the lands transferred to the United States under section 2, and the lands so transferred shall constitute a part of the Navajo Reservation and shall be held by the United States in trust for the Navajo Tribe and shall be subject to all laws and regulations applicable to that reservation. The owners of range improvements of a permanent nature placed, under the authority of a permit from or agreement with the United States, on lands transferred pursuant to this section shall be compensated for the reasonable value of such improvements, as determined by the Secretary out of appropriations available for the construction of the Glen Canyon unit, Colorado River storage project. To the extent that the Secretary is unable to transfer, from the lands described in subsection (c), lands equal in acreage to the lands transferred to the United States under section 2, because of the existence of valid rights in other parties than the United States (other than the rights described in subsection (d) of this section), he shall transfer to the Navajo Tribe such other available public lands (exclusive of the minerals therein but inclusive of all range improvements thereon) in reasonable proximity to the Navajo Reservation and to the lands described in subsection (c) as the tribe, with the concurrence of the Secretary, may select and as may be necessary to transfer to the tribe equal acreage in exchange for the lands transferred under section 2, and those lands so transferred shall be treated in the same manner as other lands transferred pursuant to this section.

(b) Subject to valid, existing rights, in addition to other requirements under applicable laws and regulations, mineral activities affecting the land transferred pursuant to this section shall be subject to such regulations, which may include, among others, a requirement for the posting of bond or other undertaking, as the Secretary may prescribe for protection of the interests of the Indians. Patents

¹ 25 U.S.C.A. §§ 323-328.

issued with respect to mining claims on the lands transferred pursuant to this section shall be limited to the minerals only, and for a period of ten years after the effective date of this Act, none of the lands described in subsection (c) of this section shall be open to location and entry under the general mining laws.

(c) The block of public lands (which lies to the north and west of the portion of the present Navajo Reservation in San Juan County, Utah, and abuts the reservation's boundaries within the county) from which the transfer under this section is to be made, is described as follows:

SALT LAKE MERIDIAN

Township 38 south, range 23 east: Sections 26, 33, 34, and 35.

Township 38 south, range 24 east: Section 28; section 29, east half; sections 31, 33, 34, and 35.

Township 39 south, range 22 east: Sections 13, 24, 25, and 35, those portions lying east of Recapture Creek.

Township 39 south, range 23 east: Sections 1, 3, 4, and 5; sections 8 to 15, inclusive; section 17; sections 18 and 19, those portions lying east of Recapture Creek; sections 20 to 31, inclusive; sections 33, 34, and 35.

Township 39 south, range 24 east: Section 1; sections 3 to 15, inclusive; sections 17 to 24, inclusive; sections 26 and 27, those portions lying north and west of the present Navajo Indian Reservation; sections 28, 29, 30, 31, and 33; section 34, that portion lying north and west of the present Navajo Indian Reservation.

Township 39 south, range 25 east: Sections 5, 6, 7, 8, and 18.

Township 40 south, range 22 east: Section 1; sections 11, 12, 13, 23, 24, 25, and 26, those portions lying east of Recapture Creek and north of the present Navajo Indian Reservation.

Township 40 south, range 23 east: Section 1; sections 3 to 15, inclusive; sections 17 to 23, inclusive; section 26; sections 24, 25, 27, 28, 29, 30, 34, and 35, those portions lying north and west of the present Navajo Indian Reservation.

Township 40 south, range 24 east: Sections 3, 4, 5, those portions lying north and west of the present Navajo Indian Reservation; section 6; sections 7, 8, 18, and 19, those portions lying north and west of the present Navajo Indian Reservation.

(d) The transfer hereinabove provided for shall also be deemed to constitute full and complete satisfaction of any and all rights which are based solely upon Indian use and occupancy or possession claimed by or on behalf of any individual members of the Navajo Tribe in their individual capacities or any groups or identifiable bands thereof to any and all public lands in San Juan County, Utah, outside the exterior boundaries of the Navajo Indian Reservation as the same are described in:

- (1) The Act of March 1, 1933 (ch. 160, 47 Stat. 1418);
- (2) Executive Order 324A of May 15, 1905;
- (3) Executive order of May 17, 1884; and

all such rights to such lands are hereby extinguished from and after January 1, 1963. Subject to the provision of section 2 of this Act, and subject to valid existing rights, all public lands of the United States within said exterior boundaries of said reservation are hereby declared to be held in trust for the benefit of the Navajo Tribe of Indians. The term "public lands" as used herein shall be deemed to include but in no way to be limited to lands and the mineral deposits which originally may have been excluded from said reservation by reason of settlement or occupancy or other valid rights then existing, but since relinquished, extinguished, or otherwise terminated. The tribe is hereby authorized to adopt such rules and regulations as it deems appropriate, with the approval of the Secretary, for residence and use of the lands transferred pursuant to this section: *Provided*, That the tribal council shall give preference until January 1, 1963, in granting residence and use rights to: (1) those Navajos who, prior to the effective date of this Act, have used or occupied the transferred lands and (2) those Navajos who, prior to the effective date of this Act, have used or occupied other public lands in San Juan County, Utah.

(e) Upon application of the Navajo Tribe, the Secretary shall grant to the tribe, to be held in trust by the United States for use of tribal members grazing livestock upon the lands transferred under this section, a nonexclusive easement, of suitable width and location as he determines, for a livestock driveway across the public lands in sections 21, 22, 23, and 24, township 39 south, range 22 east, and in section 19, township 39 south, range 23 east, Salt Lake meridian, to connect with United States Highway Numbered 47. Use of said nonexclusive easement shall be in accordance with regulations prescribed by the Secretary, and future uses and dispositions of the public lands affected shall be subject to said easement.

(f) The transfer of lands to the Navajo Tribe, as provided in this section, shall not affect the status of rights-of-way for public highways traversing such lands, which rights-of-way shall remain available for public use, including the movement of livestock thereon.

(g) The Secretary of the Interior shall compensate persons whose grazing permits, licenses or leases covering lands transferred to the Navajo Tribe pursuant to this section are canceled because of such transfer. Such compensation shall be determined in accordance with the standard prescribed by the Act of July 9, 1942, as amended (43 U.S.C. 315q).⁹⁹ Such compensation shall be paid from appropriations available for the construction of the Glen Canyon unit, Colorado River storage project.

Sec. 2. (a) There is hereby transferred to the United States all the right, title, and interest of the Navajo Tribe in and to the lands (exclusive of the minerals therein) described in subsection (b) of this section. These lands shall no longer be "Indian country" within the meaning of title 18, United States Code, section 115,¹ and they shall have the status of public lands withdrawn and being adminis-

⁹⁹. 43 U.S.C.A. § 315q.
¹. 18 U.S.C.A. § 115.

tered pursuant to the Federal reclamation laws and shall be subject to all laws and regulations governing the use and disposition of public lands in that status. The rights herein transferred shall not extend to the utilization of the lands hereinafter described under the heading "parcel B" for public recreational facilities without the approval of the Navajo Tribal Council. No permit, lease, license, or other right covering the exploration for or extraction of the minerals herein reserved to the tribe shall be granted or exercised by or on behalf of the tribe except under such conditions and with such restrictions, limitations, or stipulations as the Secretary deems appropriate, in connection with the Glen Canyon unit, to protect the interests of the United States and of its grantees, licensees, transferees, and permittees, and their heirs and assigns. Subject to the mineral rights herein reserved to the tribe as aforesaid, the Secretary may dispose of lots in townsites established on the lands transferred under this section, together with improvements thereon, under such terms and conditions as he determines to be appropriate, including provisions for payment for the furnishing of municipal facilities and services while such facilities and services are provided by the United States and for the establishment of liens in connection therewith, but no disposition shall be at less than the current fair market value, and he may dedicate portions of lands in such townsites, whether or not improved, for public purposes and transfer the land so dedicated to appropriate State or local public bodies and nonprofit corporations. He may also enter into contracts with State or local public bodies and nonprofit corporations whereby either party may undertake to render to the other such services in aid of the performance of activities and functions of a municipal, governmental, or public or quasi-public nature as will, in the Secretary's judgment, contribute substantially to the efficiency or the economy of the operations of the Department of the Interior in connection with the Glen Canyon unit.

(b) The lands which are transferred under this section are described as follows:

PARCEL A

The following tract of unsurveyed land situated in Arizona: Beginning on the easterly bank of the Colorado River at a point where said easterly bank is intersected by the south line of section 9, township 40 north, range 8 east, Gila and Salt River base and meridian; thence upstream along the said easterly bank of the Colorado River to a point where said bank intersects the east line of section 16, township 41 north, range 9 east, Gila and Salt River base and meridian; thence south along the east line of sections 16, 21, 28, and 33 of said township 41 north, range 9 east, to the south line of said section 33; thence west along the south line of said section 33 to the east line of section 4, township 40 north, range 9 east, Gila and Salt River base and meridian; thence south along the east line of sections 4 and 9 of said township 40 north, range 9 east, to the south line of said section 9; thence west along the south line of sections 9, 8, and 7 of said township 40 north, range 9 east, and along the south line of

sections 12, 11, 10, and 9 of said township 40 north, range 8 east, Gila and Salt River base and meridian to the point of beginning.

Appendix

PARCEL B

The following tract of land in part unsurveyed situated in Arizona and Utah: Beginning at a point where the east line of section 16, township 41 north, range 9 east, Gila and Salt River base and meridian intersects the north boundary of the Navajo Indian Reservation in Arizona; thence upstream in Arizona and Utah along the north boundary of the reservation to a point where said north boundary intersects a contour line the elevation of which is 3,720 mean sea level (United States Coast and Geodetic Survey datum), said point being at approximate river mile 72.7 on the San Juan River above its confluence with the Colorado River, and also being near the east line of township 40 south, range 15 east, Salt Lake base and meridian; thence generally southwesterly within the Navajo Indian Reservation along said contour line the elevation of which is 3,720, to the point where said contour line intersects the east line of section 16, township 41 north, range 9 east, Gila and Salt River base and meridian; thence north along said east line to the point of beginning.

(c) The Secretary and the tribe may enter into such agreements as are appropriate for the utilization, under permits or easements, of such tribal lands, in the vicinity of Rainbow Bridge National Monument, as may be necessary in connection with the carrying out of any measures undertaken to preclude impairment of the monument as provided by section 1 of the Act of April 11, 1956 (70 Stat. 105).

(d) As used in this and in the preceding section of this Act, the term "minerals" shall not be construed to include sand, gravel, or other building or construction materials.

Sec. 3. (a) The State of Utah may convey to the United States title to any State-owned lands within the area described in subsection (b) of this section or subsection (c) of section 1 of this Act as base lands for indemnity selections under sections 2275 and 2276 of the Revised Statutes (43 U.S.C., secs. 851, 852).² The Secretary of the Interior shall give priority to indemnity selection applications made pursuant to this subsection by the State of Utah. However, all conveyances made pursuant to this subsection, whether by the United States or by the State of Utah, shall contain a reservation of the minerals to the grantor. Lands conveyed to the United States under this section shall be subject to selection by the Secretary of the Interior, and transfer to, the Navajo Tribe in the same manner as, and under the same terms and conditions as, lands described in subsection (c) of section 1 of this Act. Notwithstanding a conveyance to the United States of State-owned lands in accordance with the provisions of this subsection, such conveyance shall not prevent the Navajo Tribe from asserting, in any manner that would have been available to the tribe if the conveyance had not been made, a claim of title, if any, to the lands conveyed by the State that the tribe

² 43 U.S.C.A. §§ 851, 852.

asserts is superior to the title asserted by the State of Utah. If a claim of title so asserted by the Navajo Tribe determined to be superior to the title asserted by the State of Utah, and if the Navajo Tribe has selected such lands as a part of the transfer authorized by section 1 of this Act, the Navajo Tribe shall be permitted to select other lands described in subsection (c) of section 1 in lieu thereof.

(b) The lands referred to in subsection (a) of this section and not described in subsection (c) of section 1 of this Act are described as follows:

SALT LAKE MERIDIAN

Township 38 south, range 23 east: section 36.

Township 38 south, range 24 east: section 32.

Township 39 south, range 22 east: section 36.

Township 39 south, range 23 east: sections 2, 16, 32, and 36.

Township 39 south, range 24 east: sections 2, 16, and 32.

Township 40 south, range 22 east: section 2.

Township 40 south, range 23 east: sections 2, 16, and 36.

(c) The right of the State of Utah to make indemnity selections under the terms of this section shall expire five years after the date of approval of this Act.

Approved September 2, 1958.

ARMED FORCES—MEDICAL OFFICERS— OVERPAYMENTS—VALIDATION

For Legislative History of Act, see p. 5094

PUBLIC LAW 85-869: 72 STAT. 1690

[H. R. 3366]

An Act to validate overpayments of pay and allowances made to certain officers of the Army, Navy, Naval Reserve, and Air Force, while undergoing training at civilian hospitals, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That:

Notwithstanding any other law, all payments of pay and allowances made to any commissioned officer of the Medical Corps of the Army, Navy, or the Naval Reserve, or any medical officer of the Air Force, who, while serving on active duty before July 1, 1954, as an intern or resident physician in a hospital other than a Federal hospital, are validated to the extent that such compensation, pay and allowances were paid.

Sec. 2. Any person covered by section 1 who has made a repayment to the United States of the amount so paid to him as such compensation, pay or allowances is entitled to be paid the amount involved, if otherwise proper. Any repayment hereby authorized will be made from appropriations currently available for pay and allowances.

Sec. 3. In the audit and settlement of the accounts of any certifying or disbursing officer full credit shall be given for the amount for which liability is relieved by this Act.

Approved September 2, 1958.

COOPERATIVE AGREEMENTS BETWEEN GLEN CANYON NATIONAL
RECREATION AREA AND OTHER AGENCIESBetween the Bureau of Land Management and Glen Canyon
National Recreation Area

Memorandum of Understanding relating to grazing in Glen Canyon National Recreation Area in the State of Arizona.

Memorandum of Understanding for coordination of wilderness studies on adjacent Bureau of Land Management administered lands.

Interagency Agreement for the administrative use of the Escalante River Canyon Area.

Memorandum of Understanding to provide for the coordination, at the field level, of management of National Park Service areas and associated Bureau of Land Management public land areas in Utah.

Memorandum of Understanding relating to grazing within Glen Canyon National Recreation Area in the State of Utah.

Memorandum of Agreement for repeater sharing and operation of two Bureau of Land Management resource radios in the Paria Canyon and Glen Canyon National Recreation Area in Arizona and Utah.

Cooperative Agreement for bighorn sheep transplant within Glen Canyon National Recreation Area between the National Park Service, the Bureau of Land Management, and the Utah Division of Wildlife Resources.

Letter of Understanding for a cooperative plan for liquid waste disposal from the Star Springs campgrounds to be disposed of in the sewage disposal system at Bullfrog Basin.

Memorandum of Understanding pertaining to the use of the Bureau of Land Management administrative site located at Escalante, Utah.

Memorandum of Understanding for the administration of river use on the San Juan River from Montezuma Creek, Utah, to Clay Hills Crossing, Utah, located partly within Glen Canyon.

STATEMENT FOR MANAGEMENT - GLEN CANYON NRA

Between the Navajo Tribe and Glen Canyon National Recreation Area

Memorandum of Agreement relating to the use and development of Glen Canyon National Recreation Area and adjacent tribal lands.

Memorandum of Agreement related to repeater sharing with the Navajo Mountain Ranger, Navajo Nation, Utah.

Between the U.S. Bureau of Reclamation and Glen Canyon National Recreation Area

Memorandum of Agreement for administration of recreation facilities, lands, water, and reclamation works on land withdrawn and acquired by the Bureau of Reclamation in the Glen Canyon National Recreation Area.

Memorandum from Chief, U.S. Bureau of Reclamation, pertaining to grounds maintenance at the Visitor Center.

Memorandum from Superintendent, Glen Canyon, to Regional Director, U.S. Bureau of Reclamation, relating to the Dominguez-Escalante Trail Exhibit.

Memorandum of Agreement concerning the handling of accidents at the visitor center and through the tour route.

Between the U.S. Geological Survey and Glen Canyon National Recreation Area

Memorandum of Agreement relating to the use and development of certain lands within Glen Canyon at Lees Ferry.

Cooperative Agreement for stream-gauging operations to be conducted in the Lees Ferry area, Glen Canyon National Recreation Area.

Between the State of Utah and Glen Canyon National Recreation Area

Cooperative Agreement between Utah Department of Natural Resources, Division of Wildlife Resources, to reintroduce desert bighorn sheep into Glen Canyon National Recreation Area.

Memorandum of Agreement between Utah Division of Parks and Recreation for boating law administration on the Utah portion of Lake Powell within Glen Canyon National Recreation Area.

Memorandum of Agreement between Utah Division of Wildlife Resources for the use of radio frequencies on the Glen Canyon radio system.

Memorandum of Agreement between Utah Division of Parks and Recreation for the use of radio frequencies on the Glen Canyon radio system.

Cooperative communications agreement between Utah Department of Transportation, Utah State Highway Patrol, for Glen Canyon to utilize radio frequencies of the Utah State Highway Patrol.

Between the City of Page, Arizona, and Glen Canyon National Recreation Area

Memorandum of Understanding between Page Police Department and Glen Canyon for radio dispatch assistance.

Letter from the Page Police Chief and Page Fire Chief authorizing Glen Canyon to utilize two of the City of Page radio frequencies.

Cooperative Agreement between the City of Page and Glen Canyon National Recreation Area for construction of Wahweap and Lees Ferry visitor-use facilities.

Between the United States Coast Guard and Glen Canyon National Recreation Area

Cooperative Boating Safety Agreement for a boating safety program on all waters within the recreation area provided by Glen Canyon National Recreation Area, and the U.S. Coast Guard will be responsible over matters which are within its exclusive jurisdiction.

Cooperative Navigational Aids Agreement for the establishment, operation, and maintenance of a system of navigational aids and regulatory markers conforming to established standards.

Letter of concurrence for Glen Canyon National Recreation Area to use Channel 22 to communicate with boaters on Lake Powell.

Between Garfield County, Utah, and Glen Canyon National Recreation Area

Memorandum of Understanding between Garfield County, Utah, Sheriff's Office, and Glen Canyon National Recreation Area detailing investigative roles of the National Park Service

STATEMENT FOR MANAGEMENT - GLEN CANYON NRA

Commissioned Officers in relationship to the State and local agencies.

Memorandum of Agreement for deputation of park rangers by the Sheriff of Garfield County, Utah.

Between Kane County, Utah, and Glen Canyon National Recreation Area

Memorandum of Understanding between Kane County, Utah, Sheriff's Office, and Glen Canyon National Recreation Area detailing investigative roles of the National Park Service Commissioned Officers in relationship to State and local agencies.

Between Coconino County, Arizona, and Glen Canyon National Recreation Area

Letter of Authorization for the use of Coconino County Sheriff's Office radio frequency for emergency law enforcement activities by Glen Canyon National Recreation Area.

Cooperative Agreement for the construction of Wahweap visitor use facilities under State Lake Improvement Funds (SLIF).

Memorandum of Understanding between Coconino County, Arizona, Sheriff's Office, and Glen Canyon National Recreation Area detailing investigative roles of National Park Service Commissioned Officers in relationship to State and local agencies.

Between the State of Arizona and Glen Canyon National Recreation Area

Memorandum of Agreement with the Arizona Department of Public Safety and Glen Canyon National Recreation Area for deputation of Arizona Department of Public Safety personnel as National Park Service Special Police Officers within Glen Canyon National Recreation Area.

Memorandum of Understanding with Arizona Department of Public Safety for use of telecommunications site on Navajo Mountain by the National Park Service and the use of office space at the Wahweap Ranger Office by the Arizona Department of Public Safety.

Between Samaritan Health Services and Glen Canyon National Recreation Area

Cooperative Agreement for emergency medical services training for National Park Service personnel.

Cooperative Agreement for adequate and suitable space for any radio communications, recording, and biomedical telemetry equipment needed for monitoring and/or supervision of recreation area personnel.

Between Northern Arizona University and Glen Canyon National Recreation Area

Cooperative Agreement to provide a cooperative effort toward a student-intern program to conduct monitoring and research programs on the park and to further educational opportunities.

Cooperative Agreement to establish paleoenvironmental programs with the recreation area.

Between the University of Arizona and Glen Canyon National Recreation Area

Cooperative Agreement to establish paleoenvironmental programs with the recreation area.

Between Wayne County, Utah, and Glen Canyon National Recreation Area

Memorandum of Understanding between Wayne County, Utah, the Sheriff's Office, and Glen Canyon National Recreation Area detailing investigative roles of the National Park Service Commissioned Officers in relationship to State and local agencies.

Between Bullfrog Resort and Marina, Inc., and Glen Canyon National Recreation Area

Cooperative Agreement to design, construction, installation, maintenance, and security of interior exhibits and displays to be located in the Anasazi Restaurant, Bullfrog Basin, Utah.

Between Canyonlands National Park and Glen Canyon National Recreation Area

Memorandum of Understanding for mutual coordination of management activities and information sharing between both

STATEMENT FOR MANAGEMENT - GLEN CANYON NRA

parks in the Orange Cliffs-Hans Flat area and the lower Cataract Canyon-upper Lake Powell area.

Between Navajo Nation and Glen Canyon National Recreation Area

Interagency Agreement for the repair and preventive maintenance of Navajo radio equipment by Glen Canyon personnel.

NPS D-26e

